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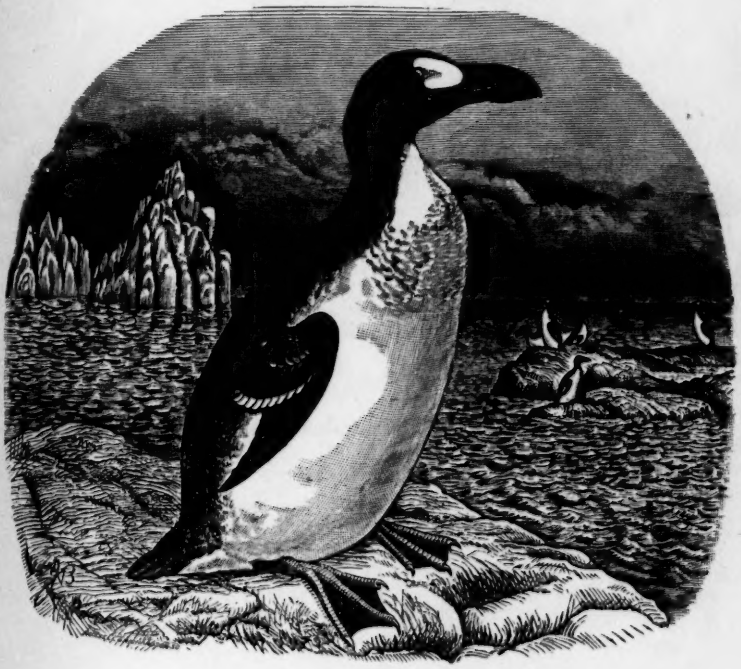

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CONTENTS OF VOLUME II.

NUMBER I.

RECENT LITERATURE.

GENERAL NOTES.

NUMBER II.

RECENT LITERATURE.

GENERAL NOTES.

CORRESPONDENCE.

NOTES AND NEWS.

NUMBER III.

RECENT LITERATURE.

GENERAL NOTES.

NUMBER IV.

RECENT LITERATURE.

GENERAL NOTES.

CORRESPONDENCE.

NOTES AND NEWS.

THE AUK:

A QUARTERLY JOURNAL OF

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ON THE BREEDING HABITS OF SOME ARIZONA BIRDS.

FIRST PAPER.—*Icterus parisorum*.

BY W. E. D. SCOTT.

DURING the spring and summer of 1884 it was my good fortune to make the acquaintance of a number of birds whose breeding habits are at best but little known, and the following data give some of the results of such observations. Most of the notes on the species in question were made at a point, to be more fully described presently, on the San Pedro slope of the Santa Catalina Mountains, in Pinal County, Arizona Territory.

Here Scott's Oriole (*Icterus parisorum*) arrives about the middle of April, and is at once among the more conspicuous birds, both for its brilliant plumage and rich song. Few birds sing more incessantly, and in fact I do not recall a species in the Eastern or Middle States that is to be heard as frequently. The males are of course the chief performers, but now and again, near a nest, while watching the birds, I would detect a female singing the same glad song, only more softly. At the earliest daybreak and all day long, even when the sun is at its highest, and during the great heat of the afternoon, its very musical whistle is one of the few bird songs that are ever present.

From the time of its arrival until July 29 I heard the song daily, even hourly, and during the height of the breeding season often many were singing within hearing at the same time.

This has been called 'a desert species,' and most Arizona birds might fall under the same grouping, at times, I suppose, but my experience with it is so very directly to the contrary that a word as to the surroundings of the home of this Oriole, as found by me, will perhaps give a better idea to the reader.

There is a cañon that begins high up in the Santa Catalinas, and, dividing the hills and table lands on either side of it by its deep furrow, it extends for two miles or more, where it joins the valley of the San Pedro River. It is the upper or more elevated part of this cañon with which we have to do, at an altitude varying from four thousand to five thousand feet. The hills on either side are high, the cañon generally quite narrow. Live oaks are the trees of the hills and hillsides, and reach in places to the bed of the cañon. Here in parts are groves of cottonwoods and scycamores, and some cedars, and, with the exception of the very bed of the cañon, where for a part of the year is a brook, the grass covers the surface of the ground. The brook begins to dry up in its exposed parts early in May, but all summer long there is running water for at least a mile in the cottonwood grove, and in a number of places, even during the driest part of the year, the water rises to the surface, making 'tanks,' as they are called. Along this running water and about the 'tanks,' bird life is very abundant, and here, surely no desert, is the summer home of many Scott's Orioles. There is very little cactus, and none of the 'chollas' that are so very characteristic of the deserts of the neighboring region.

After August 7 I missed the song, although the birds were abundant until the 10th of that month, and I saw a single bird or so for the following three days. Then I supposed they were all gone, but on the 14th of September, about dusk, I started one, an adult male, from a yucca where he had evidently gone to roost. He scolded angrily at me from the dead limb of a cedar near by for a few moments, when I left him to go to bed. Again, on the 18th of September, I heard a male in full song, and going closer found a party of four together, three old males and a young one of the year. This is my last note of their occurrence at this point.

There are many yuccas (*Yucca baccata*) in the cañon and on the hillside, none of them exceeding ten feet in height, and it was in one of these, only a few feet from a wood near where some one passed daily, and close to a 'tank' of water, that on May 24 I found the first nest. It was carefully concealed under the half dead and dry leaves that hung downward close to the trunk of the plant. Two of the long pointed blades had still been green enough to allow the pulp to be picked away, and the tough fibers had then been frayed and used as a sort of starting point or foundation for the structure which was thus 'sewed'—I know no more appropriate word—fast to the edges of the leaf. I only caught a glimpse of the female and was not sure of the bird till later, when both parents were identified to my satisfaction.

The nest contained three fresh eggs, though four is the usual number, as three nests found during the next few days proved. These nests were all built in yuccas, none were far from water, and, strangely, for a rather shy and suspicious bird, all were within ten feet of the road. The last, that of May 30, to be spoken of in detail presently, was so near a much used trail, that the passer by might have touched it with the hand. The following descriptions of the nests in detail are copied from my notes:

"Nest of May 24. Built in a yucca, four feet from the ground. Sewed to the edges of five dead leaves which, hanging down parallel to trunk of the plant, entirely concealed the nest. Semi-pensile. Composed externally of fibers of the yucca and fine grasses. Lined with soft grasses and threads of cotton-waste throughout. The walls are very thin, at bottom not more than half an inch, and on the sides from one-eighth to a quarter of an inch thick. The whole nest was rather closely woven and very strong. Inside depth, three and a half inches. Inside diameter, four inches. The whole cup-shaped. Contains three fresh eggs. The female was killed flying from the nest, or the set would have been completed. Eggs bluish-white in color, with a cluster of chocolate-brown spots, and others of lighter lilac-brown at the larger end, spotted very sparsely all over, mainly with a still lighter shade of the latter color, though a very few of these dispersed markings are also dark chocolate-brown. They measure .98 × .69, .92 × .65, 1.00 × .73 inches, respectively. I have called this nest semi-pensile, as the edges of the yucca

leaves are not simply attached to the rim or top edge of the nest, but are 'sewed' to the *sides* of the structure—one blade for three inches, three for four inches, and the other two for more than two inches and a half. The nest is sewed to the blades or leaves about seven inches from where they join the trunk of the plant, and the blades are about twenty-two inches long."

"Nest of May 27. Built in yucca, about four feet from ground. Nest sewed to the edges of three leaves, all on one side of the structure and close together, being about three-quarters of an inch apart. Other leaves project downward at an angle of about 45°, and the nest rests on them, as it would on the slanting roof of a house. It is therefore not at all pensile. Is built of grasses, yucca fiber, and has cotton twine woven into its walls. Inside it is lined to within half an inch of the rim with small pieces of cotton batting, some cotton twine, and a little very soft grass. It is sewed to the edges of each of the three leaves it rests on for six inches. The walls on the sides are an inch, and at the bottom an inch and a half thick. The general inside shape is oval, the greatest diameter being four and the least three and a half inches. The greatest depth inside is three and a half inches. The walls on sides sewed to leaves are about six inches in depth, and on the side rising from the leaves four inches. It contains four fresh eggs, that recall those of the Red-winged Blackbird (*Agelæus phœniceus*) in general appearance. They measure as follows: .96 × .68, .98 × .66, .92 × .68, .96 × .68. The nest is sewed to the leaves about ten inches from where they join the trunk of the plant, and the leaves are about eighteen inches long. Other leaves hanging downward above those on which the nest rests almost conceal it."

"Nest of May 30. Built in yucca, four feet from the ground. Composed of yucca fiber and fine grasses, and is very similar to that of May 24 in general appearance. The bottom of the structure inside is lined with a soft mat of cotton-waste. Semi-pensile, being sewed to six leaves of the plant, three of which almost conceal the nest from view. The nest measures: depth inside, four inches; depth outside, five and a half inches; inside diameter at top, four inches. The general shape of the interior is that of a rather large and shallow cup. Contains four eggs, partially incubated. Ground-color bluish-white, with much the same colored markings as those of the nest of May 24. Their

general shape differs, however, as they are much more pointed at one end and flattened at the other, the shape reminding one of the eggs of some of the Plovers. They measure .92 × .71, .93 × .78, .91 × .70, .88 × .69. The sewing of the nest reaches on two of the leaves four inches; on one, five inches; on one, three inches; and on the other two, an inch and a half. The nest is fastened to the leaves about five inches from where they join the stem or trunk of the plant, and the leaves to which it is fastened are rather more than twenty inches long.

"Second nest of May 30. Similar in location to the first nest of same date and built in same kind of plant. Composed of grasses and yucca fiber, the later mainly, and has in the inside at bottom a very thick lining of cotton-waste. Is semi-pensile, and is sewed to four green leaves—to one for six inches, the entire wall of the nest for its whole length being fastened. A second is sewed only for half an inch to the wall very close to the *bottom* of the nest. A third is very similar in its point of attachment, only that it is fastened for a little more than an inch, and the last is fastened for three inches in the ordinary way. The nest is very uneven in shape externally, being fully six inches deep on one side and not more than two inches deep on the other. The nest has an interior diameter of four and a quarter inches, and is very shallow and cup-shaped, being only two and a quarter inches deep at its deepest part. Four fresh eggs are the contents, and they vary only in not being so pointed as the other set of May 30. They are rather larger than any others measured, being 1.01 × .72, 1.02 × .70, .97 × .70, 1.02 × .73. The general shape of the nest is an uneven, one-sided cup, with its greatest external diameter four and three-quarters inches. It is attached to the leaves about seven inches from the trunk of the plant, and the leaves to which it is attached are twenty-six inches long. It is built but little more than three feet from the ground, and partially concealed by over-hanging leaves."

The cotton and cotton-waste were doubtless picked up by the birds about the house and near a mill but a little distance away, where the waste is used in polishing machinery, etc.

Some pairs of the birds, at least, raise two broods during the season. A fifth nest, completing my series, was found just finished on June 26, and all the eggs, three in number, were deposited by July 1, when the nest was taken. It was built in a

sycamore overhanging the wood-road before mentioned, and about forty yards from water. It differs greatly from any of the others, as the appended notes show.

"Nest of July 1. Built in a sycamore tree, about eighteen feet from the ground. Pensile, being attached to the ends of the twigs. It is composed externally entirely of the fibers of dead yucca leaves, and there are hanging to and built into the walls four rather small dead leaves of this plant, that are partly frayed, so that the fiber is used in weaving them into the structure. The interior is lined with soft fine grasses, and only two or three shreds of cotton-waste appear here and there in the lining. The walls vary from a quarter to half an inch in thickness. The whole structure is very symmetrical and is a half sphere in shape. Inside the greatest depth is two and a half and the greatest diameter four inches. The entire set of eggs was laid, as the nest had been watched for a number of days; and the female was killed, when the nest was taken, and dissected. Three eggs compose the set, and differ from those already described only in being of a deeper bluish-white ground-color. They measure .88 × .72, .98 × .70, .90 × .74, being therefore rather rounder in general outline than any of the other sets. This nest is attached to the twigs from which it hangs very much like that of a Baltimore Oriole (*Icterus baltimore*)."

Ten minutes' walk from the house would have reached any of these five nests, and three of them were within a hundred and fifty yards of one another.

The first young that I met with, that had left the nest, were seen on July 2, and on July 4 I saw many fully fledged, and apparently shifting for themselves. The following note is dated July 24: "Young males, fully fledged, evidently of the first brood, were singing very softly." "A young male taken, beginning to moult from 'first' plumage; the first noted in this condition."

The species here is a very common one, and it seems possible that after a few years' association with houses and people it may no longer be the shy, suspicious bird of the present, but become as familiar as others of the genus have. On their first arrival they were constantly in the oaks overhanging the house, and only seemed alarmed if too closely observed.

That they do not always build in the yuccas, though doubtless that is the favorite nesting place, the nest of July 1 proves, and I

feel confident that certain Orioles' nests that I have seen in the misseltoe of the oaks, and others pendant from the oak boughs themselves, are, from their general character, those of the species in question.

BIRD NAMES OF THE SELISH, PAH-UTA AND SHOSHONI INDIANS.

BY W. J. HOFFMAN, M. D.

MOST of the data herewith submitted were obtained from the Selish, or Flathead, Indians, in Western Montana, who occupy a fertile region known as the Jocko Valley, which is bounded on the west by the Rocky Mountains. Other information was also obtained from the Pah-Uta Indians in the vicinity of Pyramid Lake, Nevada; from the Uta Indians of Los Pinos, Colorado, and the Shoshoni at Fort Hall, Idaho.

To obtain the names of birds from any aboriginal tribe is no slight task. The living specimen, of any given species, may be very familiar to them, but should the dead specimen be presented for identification, there is uncertainty and doubt, and frequently it will be impossible for the collector to receive any but a generic term, if even that. The reason for this is, that Indians, while close observers regarding flight, habits, or voice of the bird, are at a loss unless they kill a species and instantly pronounce their decision, the association of their own name with it being based upon one of these peculiarities. Some marked genera are readily identified by all the members of the tribe; and even species have peculiarities in color-markings, the shape of the bill, legs, etc., so that one may not always find the difficulties referred to.

There does not appear to be a division of birds, among any of our tribes, into Land Birds and Water Birds. But, on the contrary, there is a distinction between *large birds* and *small birds*. The latter are called *tsin-ka'-la* by the Dakota; *si-su'* by the Washo; *nu-tsi-pa'* by the Pah-Uta; and *ha'-wits* by the Uta. These names include even the Grouse and Wild Turkey, but should raptorial birds be referred to, though smaller than the last-

named, the particular designation would at once be furnished without reference to size, as the Raptores have, in each instance, names of a generic and specific character, or perhaps one only, implying something with reference to peculiarities of the beak, the claws, or the manner of grasping the prey. An instance of this may be observed in a *Falco* sp? of the 'Crow' Indians, viz: the *Absároka*, after which the tribe is named. The word *Absároka* is derived from *apita; ap* an arrow point, a hook, and *'ta* to kill; *i.e.*, to kill with an arrow-pointed mouth. The latter portion of the word is not clear. The word for Crow (*Corvus*) in the same language is *pe-ri'-tshi*, and signifies 'to defile one's self.' With these few remarks I will proceed to the list of names, under which further discussion will be continued, when necessary. The orthography is phonetic, vowels having continental sound, and but two characters are introduced for which no representative sounds occur in English, viz: —

χ, similar to the German *ch* in *nacht*, or rather the Spanish *j* in *mujer*. Equivalent to the Arabic *ghain*.

ϱ similar to German *ch* in *nicht*. The letters S., Sh., P., or U., in parentheses, refer respectively to Selish, Shoshoni, Pah-Uta, and Uta.

1. **Oreoscoptes montanus** (*Towns.*) *Baird.* SAGE THRASHER. *Tsĕ'-num* (P.). — In the Pah-Ute mythology this bird was a great soldier, but on account of his being a cannibal, he was transformed into his present shape, and is compelled to dodge beneath the sage-brush.

2. **Cinclus mexicanus** *Swains.* WATER OUZEL. *Si''-am-bŏ'-gua-tsi* (Sh.).

3. **Sialia arctica** *Swains.* ROCKY MOUNTAIN BLUEBIRD. *N'l-χkwi-kwa'-ia* (S.). This is also used as a generic term for all small birds of a blue plumage. The Shoshoni generic term is *wo-gwĭ'-do-ia*.

4. **Pyranga ludoviciana** (*Wils.*) *Bp.* WESTERN TANAGER. *Wa'-na-wi-ni* (P.). The Shoshoni general term for red birds is *enk'-hu-tshue* from *enk*, red, and *hu'-tshu*, bird.

5. **Loxia curvirostra americana** (*Wils.*) *Coues.* AMERICAN CROSSBILL. *Ai''-gu-sa'* (S.). The distortion of the mandibles was caused by the coyote. (*Myth.*)

6. **Xanthocephalus icterocephalus** (*Bonap.*) *Baird.* YELLOW-HEADED BLACKBIRD. *S'ke-k'itsh-kla'* (S.); *pa-kŏ'-rop* (P.).

7. **Agelæus phœniceus** (*Linn.*) *Vieill.* RED-AND-BUFF-SHOULDERED BLACKBIRD. *K'itsh-kla* (S.); *i-a'-pan* (P.), so called on account of the spots of color upon the shoulders, as he was an officer long ago. (*Myth.*) Both terms above given are also used by the tribes as referring to black birds generally.

8. **Sturnella neglecta** *Aud.* WESTERN MEADOW LARK. *We-wĭt'-su-lĕ*

(S.). In the mythology of the Selish, the coyote colored the Lark's breast with the yolk of an egg.

9. **Corvus corax carnivorus** (*Bartr.*) *Ridgw.* AMERICAN RAVEN. *Mĕ-lă'* (S.); *wi-hă'* (P.); *to-gwo'-ri-ka* (Sh.).

10. **Corvus frugivorus** *Bartr.* COMMON CROW. *Tsa-a'* (S.); *a-da'* (P.); *ta'-gu-uts* (U.); *kāk, kawk,* (Sh.). As above stated, the Absaroka call this bird *peritshi* — that which defiles itself. Usually the term is onomatopoëtic in other languages.

11. **Gymnocitta cyanocephala** *Max.* PINON JAY. *Wi-a'* (P.). This was the daughter of the coyote. (*Myth.*)

12. **Pica rustica hudsonica** (*Scop.*) *Baird.* BLACK-BILLED MAGPIE. *A'dn* (S.); *ma'-gwits* (U.); *kwi''-ti-wut* (Sh.)

13. **Trochilus colubris** *Linn.* RUBY-THROATED HUMMINGBIRD. *Som-wĕ'* (P.); *qo'-nim-qo'-nim* (S.).

14. **Cypselus saxatilis** *Woodh.* WHITE-THROATED SWIFT. *Măb'n-kwĭt-sĕn* (S.).—A name was given to me by the Shoshoni for one species which frequents the water, but which was not identified. It is undoubtedly another genus. They term it *pah'-sho-gum'-bits*—'skim-over-the-water.'

15. **Phalænoptilus nuttalli** (*Aud.*) *Ridgw.* POORWILL. *Spăs* (S.); *waĭ'-ia-wi* (P.).

16. **Melanerpes formicivorus bairdi** *Ridgw.* CALIFORNIAN WOODPECKER. *S'pu'-aĭ'-χa* (S.).

17. **Sphryapicus varius nuchalis** *Baird.* RED-NAPED WOODPECKER. *Ho-to-to'-ro-pĕ* (Sh.).

18. **Picus villosus harrisi** (*Aud.*) *Allen.* HARRIS'S WOODPECKER. *Stĕl-qū'* (S.).

19. **Colaptes auratus mexicanus** (*Sw.*) *Ridgw.* RED-SHAFTED FLICKER. *Kul-kul-ĕtsh'* (S.); *i'-tsa-bă'-ni* (P.).

20. **Ceryle alcyon** (*Linn.*) *Boie.* KINGFISHER. *Smâ-tskĕ'nq* (S.).

21. **Asio americanus** (*Steph.*) *Sharpe.* AMERICAN LONG-EARED OWL. *N'spu-ish'n-i-mĕ'* (S.).

22. **Scops asio** (*Linn.*) *Bp.* LITTLE SCREECH OWL. *N'tshit-qĕ'* (S.); *ha'-mi-tse* (Sh.).

23. **Bubo virginianus subarcticus** (*Hoy*) *Ridgw.* WESTERN HORNED OWL. *Sni'-nĕ-e* (S.); *mŭ'-mbits* (Sh.).

24. **Speotyto cunicularia hypogæa** (*Bp.*) *Ridgw.* BURROWING OWL. *Tin-tsan'-in-de'-iq* (Sh.). This is the prairie dog's brother-in-law. (*Myth.*)

25. **Falco peregrinus nævius** (*Gm.*) *Ridgw.* DUCK HAWK. *Hâ-tât* (S.).

26. **Pandion haliaëtus carolinensis** (*Gm.*) *Ridgw.* FISH HAWK. *Tsi-uq-tsuq'* (S.), the coyote's cousin.

27. **Circus hudsonius** (*Linn.*) *Vieill.* MARSH HAWK. *Pān-tsi'* (Sh.); *ki-ni'* (P.).

28. **Buteo borealis calurus** (*Cass.*) *Ridgw.* WESTERN RED-TAILED HAWK. *Tsĕl-tsĕl-tshi-mŭ'* (S.); *sa'-na-kwi''-na* (Sh.).

29. **Aquila chrysaëtus canadensis** (*Linn.*) *Ridgw.* GOLDEN EAGLE. *Mel'-kĕ-nŏ'* (S.); *kwi-na'* (P.). *Kwa-nuts'* (U.), is a term applied to Eagles generally.

30. **Haliaëtus leucocephalus** (*Linn.*) *Savig.* BALD EAGLE. *P'kal-qke'* (S.).

31. **Cathartes aura** (*Linn.*) *Illig.* TURKEY BUZZARD. *Tsa'kŏ-wi-a* (S.); *to-gwo'-ri-ka*—'snake eater' (Sh.).

32. **Zenaidura carolinensis** (*Linn.*) *Bp.* MOURNING DOVE. *Wa'-u-ia'-ŭk* (S.); *hă-wŏ* (Sh.). A generic term.

33. **Meleagris gallopavo** *Linn.* WILD TURKEY. *Ko'-io-nit* (Sh.).

34. **Canace obscura** (*Say*) *Bp.* DUSKY GROUSE. *Wŭng-go'-wa* (Sh.).

35. **Bonasa umbella** (*Linn.*) *Steph.* RUFFED GROUSE. *Ka'-χil'l-sĕ* (S.); *kwi"-ŭt* (U.).

36. **Centrocercus urophasianus** (*Bp.*) *Swains.* SAGE COCK. *S'ká* (S.); *hu-tsi"* (P.); *hu'-dsha* (Sh.).

37. **Lophortyx californica** (*Shaw*) *Bp.* CALIFORNIA QUAIL. *Ka-ka-p̣u'u* (P.). The last syllable is almost silent and the head, in speaking, is dropped downward on the breast. The Indians state that "this is the way the bird calls himself." Another instance of onomatopœia.

38. **Ardea herodias** *Linn.* GREAT BLUE HERON. *Sá-má-ku-e-ĭ'* (S.)

39. **Nyctiardea grisea nævia** (*Bodd.*) *Allen.* BLACK-CROWNED NIGHT HERON. *Sma-tskĕ'-uq* (S.); *ua-sha'* (P.).

40. **Numenius hudsonicus** *Lath.* HUDSONIAN CURLEW. *Ha-wĭt'-ha-wĭt'* (S.).

41. **Numenius longirostris** *Wils.* LONG-BILLED CURLEW. *Hĕ'-kōn* (Sh.).

42. **Fulica americana** *Gmel.* AMERICAN COOT. *Stĕl-ăk'-sha* (S.); *sai-a'* (P.).

43. **Grus canadensis** (*Linn.*) *Temm.* SANDHILL CRANE. *Skwal-tshĭn'* (S.); *kor-de'-de'u* (P.); *ko'-an-dâ-tă* (Sh.).

44. **Olor americanus** (*Sharpless*) *Bp.* WHISTLING SWAN. *S'p̣'k-a-mi'* (S.); *noid't* (P.); *p̣ah'-do-shi'* (Sh.).

45. **Chen cærulescens** (*Linn.*) *Ridgw.* BLUE-WINGED GOOSE. *Kŭ-si' uq* (S.); *ne'-git* (P.); *na'-gunt* (Sh.).

46. **Bernicla brenta** (*Pall.*) *Steph.* BRANT. *Pe-gu-kua'-tsi* (P.).

47. **Aix sponsa** (*Linn.*) *Boie.* WOOD DUCK. *Pi-hĭ'* (P.) Also used as a generic term for all Ducks.

48. **Æthyia americana** (*Eyt.*) *Bp.* REDHEAD. *Nŏ-sŏ'-shi-nĕ'* (S.).

49. **Colymbus torquatus** *Brünn.* LOON. *O-sŭ'-l'uq* (S.).

ON THE VERTICAL RANGE OF BIRDS IN COLORADO.

BY FRANK M. DREW.

COLORADO, lying between 37° and 41° north latitude and 102° and 107° west longitude, is preëminently a mountain state. Of its 104,500 square miles fully one-half is mountainous, the average elevation of the State being 6000 feet, with extremes of 3500 and 14,500 feet. Rising slowly from the Missouri River, the treeless plains, having already reached an altitude of 3500 feet at the eastern border of the State, thence continue to rise more rapidly, but yet gradually, to nearly half way across the State. There, at an elevation of about 6000 feet, the outlying foothills throw up a dam stretching north and south the full length of the State. Up into these foothills surge the waves of bird migration in spring to about 8000 feet — the altitude of the Great Parks which stretch their huge treeless surfaces atop the hills. And down these hills comes the return tide of birds in fall, a few to linger near the base, but by far the greater part passing on and down to an altitude lower than any found within the State.

Despite its latitude, which causes very hot summers, the average temperature is below that of other States in corresponding parallels. At an elevation of about 7000 feet, an approximate average for the year gives a temperature of + 47° F.; for winter — December, January, February — of + 26°; spring — March, April, May — of + 47°; summer — June, July, August — of + 69°; autumn — September, October, November, — of + 46°. Missouri, in nearly the same latitude, has an approximate mean annual temperature of + 55°

The average temperature on the higher peaks, reaching up to from 12,000 to 14,000 feet, usually ranges from 20° to 30° lower than these figures, the difference being greatest in summer. Continued observations at several stations give an average of about + 48° for the mean annual temperature at 6000 feet, and of +38° at 10,000 feet elevation. Timber-line, which varies from 11,000 feet to 12,000 feet, has an average annual temperature — according to Gannet — of + 30°. Notwithstanding the heavy and long-continued snows of winter, and the frequent rains in summer,

the mean annual precipitation will not exceed 20 inches,—being 12 to 14 inches on the plains, and increasing to 32 inches in the mountains.

As is well known, the flora of the plains is strongly characterized by buffalo grass, sun flowers, and cacti, and as a natural result, Fringillidæ and Raptores predominate there over all other forms of bird life.

Entering the foothills, which reach an average elevation of 8000 feet, the piñon (*Pinus edulis*) and dwarf oak (*Quercus alba gunnisoni*) at once become abundant, and their matted clumps and tangled underbrush make hiding places for many Warblers. On the shoulders of the foothills rest the mountain parks, with a mean elevation of 8000 feet. They are treeless and plain-like, being covered with grass and sage, save where the grass has been killed out by grazing herds; then the shifting sands prevent aught but sage from maintaining a foothold.

The bases of the main peaks have an elevation of about 8000 feet; thence they rise rapidly, drawing themselves aloof from the life of the plains. And, indeed, it is only those birds which pass up into these uppermost levels which can properly be called mountain inhabitants, the great parks thus forming the real dividing ground between the summer camps of the hardier lowland birds and the homes of those to the manor born. Nor do the straggling migrants but rarely wander over the mountains themselves, but, instead, into these parks.

The latitudinal range of birds in the United States has been quite fully worked out, and notes on the close connection between vertical and geographical distribution are not few; yet, so far as I know, no one has tabulated the vertical range. References to elevations at which birds have been found in summer are quite frequent. Especially is this the case in Allen's 'Ornithological Reconnoissance in Kansas,' etc., and Ridgway's 'Ornithology of the 40th Parallel,' and many are given by Mr. T. M. Trippe in Coues's 'Birds of the Northwest.' I have freely borrowed from these sources, as well as from Henshaw's 'Report' on birds in volume V of Wheeler's Surveys, and from Ridgway's paper on Colorado Birds in 'Bull. Essex Inst.', Vol. V, No. 11.

One working in different parts of the State will soon perceive the floral limits to be quite sharply defined. To a certain, though less extent, the birds also are shut in by almost intangible barriers.

But so evident is it that food supply is the main factor in bird distribution—this regulated by vegetation, and this in turn by climatic influences—that it only needs be said that where food is, there the birds will be found: as, *e.g.*, Creepers and Woodpeckers at 11.000 feet in winter, and Ouzels at the same season feeding in the icy torrents as high as 9000 feet.

Most birds range high up in summer and lower in fall; some have a range the reverse of this; while others early reach their nesting-sites and remain until the time for the complete semi-annual migration comes round.

Mr. T. M. Trippe, in 'Birds of the North-West,' p. 228, has noted the over-migration in spring of *Oreoscoptes montanus*. This trait is common to many, if not all, birds in vertical migration, though I believe not in latitudinal movements. Another peculiarity of vertical migration is the upward range of many birds during the Indian summer days of autumn, *e.g.*, *Sturnella neglecta*, *Scolecophagus cyanocephalus*, *Gymnocitta cyanocephala*. This I believe to be the result of a scarcity of food at lower levels, though a somewhat similar reverse migration has been noted at the same season on the New England coast. (See B. N. O. C., Oct., 1880, p. 237, and Coues, B. N. W., p. 521.)

The following list, containing the results of five years' work in the State, is believed to be a complete one of the birds found within the boundaries of Colorado. To the south, in New Mexico, climate, and to the north lower average elevation of the mountains, causes considerable variation in the vertical range of birds. But in Colorado, I think, this range is nearly uniform, there being but few birds of the list not of general distribution in the State, and these are chiefly found in the southern portion. Mountain ridges *en échelon* combine to catch many a straggling bird. Several such are entered on but a single record, and while showing nothing of distribution, yet may be of interest in future work. Some of those accredited on scanty data are followed by the name of the authority. In the parks are found the only apologies for lakes which the State affords, and around them the few Water Birds which remain during the summer cluster to breed. In many of the upper valleys beaver streams often provide suitable homes for isolated pairs of Ducks, but by far the greater number of our Water Birds are migrants.

No claim of completeness is made, the notes being offered as a basis on which to engraft other observations, and which,

with further notes on temperature and the flora, may eventually serve to show to what extent there is a correspondence between vertical and latitudinal distribution. As most of the birds noted are summer visitants, the column showing winter range is mostly blank. The upper nesting limit is usually easily determined; the lower not so readily, as many species, in suitable localities, nest down to sea-level. But in some cases, as in *Lagopus leucurus*, *Regulus calendula*, and some others, quite well-defined limits exist, above or below which few, if any, of these birds are found during the nesting season.

Lophortyx californianus, *Ortyx virginianus*, and perhaps some others, have been introduced in the vicinity of Denver, but probably as yet their range does not extend above 5000 feet.

The figures in the columns under the headings, 'Spring,' 'Summer,' etc., refer to elevations in feet above sea-level. The 'Breeding Range' will give the full summer distribution of those remaining through that season. In the records of spring and fall migrants I have aimed to show how *high* the birds wander, and so have merely noted the upper limit of the range of birds which are generally distributed below the altitude given. But in the case of birds of erratic or little-known distribution, both the upper and lower levels inclosing their range are given. A ? following the figures in a few cases means probability amounting almost to certainty. The 'Plains' include a large part of adjoining Kansas.

The nomenclature is that of Ridgway's 'Catalogue of the Birds of North America.' But if sub-species '*montana*' is merely a modified form of *Certhia familiaris rufa*, why not put it so, and let it be understood that the last-named form is merely a modification of the preceding, as is now so well accepted in the case of varieties of the first remove? The same applies to *Pipilo maculatus arcticus megalonyx*.

		Upper Limit of range in—				*Breeds—*	
		Spring	*Summer*	*Autumn*	*Winter*	*from*	*to*
1.	Hylocichla fuscescens salicicola		8000			5000	8000
2.	Hylocichla ustulata swainsoni	6000	11000	9200		Plains	11000?
3.	Hylocichla unalashkæ auduboni	9500	11500	10000		5000	11500
4.	Merula migratoria propinqua	10000	11500	13000		Plains	11500
5.	Oreoscoptes montanus	6000	9500	9500		"	9500
6.	Mimus polyglottus	6000	8000	5000		"	8000
7.	Galeoscoptes carolinensis	9200	8000			"	8000
8.	Harporhynchus rufus	7500	7500			"	7500
9.	H. cinereus bendirei (*Brewst.*)	6000					
10.	Cinclus mexicanus	10000	11500	10000	9–6000	8000	10000
11.	"Saxicola œnanthe" (*Minot*)	5500					
12.	Sialia sialis		5500				
13.	Sialia mexicana	6000	7500			5000	7500
14.	Sialia arctica	6–10000	11500	13000		5000	11500
15.	Myiadestes townsendi	9500	11500	10–9000		8000	10000
16.	Polioptila cærulea		7000			5000	7000
17.	Regulus calendula	7000	11500	10000		7000	11000
18.	Regulus satrapa	6000	11000	10000		9000?	11000
19.	Lophophanes inornatus griseus	5000		9200	5000	5000	
20.	Parus montanus	6–9500	11500	13500	5–9200	8000	11500
21.	Parus atricapillus septentrionalis	8000	11000	11000	2–8000	Plains	10000
22.	Psaltriparus plumbeus.				6500	"	7000
23.	Sitta carolinensis aculeata	6000	11000			5000	11000?
24.	Sitta canadensis		8000			5000	8000
25.	Sitta pygmæa		10000			6000	10000
26.	Certhia familiaris rufa montana	Ranges to timber line the year round					11500
27.	Salpinctes obsoletus	6000	12000	13000		Plains	12000
28.	Catherpes mexicanus conspersus	"Resident at 6000 ft."—Aiken.					6000
29.	Troglodytes ædon parkmani	7000	11000	10000		Plains	10000
30.	Anorthura trog. hyemalis (*Ridgw.*)						
31.	Telmatodytes palustris paludicola	6000	8000	9500		"	8000
32.	Anthus ludovicianus	9500	13000	14000		12000	13000
33.	Mniotilta varia		5500				
34.	Helminthophaga virginiæ	6000	7500	8000		5000	7500
35.	Helminthophaga ruficapilla (*Ridgw.*)						
36.	Helminthophaga celata	6000	9000			6000	9000
37.	Helminthophaga peregrina	5500					
38.	Parula americana	5500					
39	Dendrœca æstiva	6000	8000			Plains	8000
40.	Dendrœca coronata	9000					
41.	Dendrœca auduboni	7500	11000	9500		7500	11000
42.	Dendrœca maculosa	5000					
43.	Dendrœca cærulea	5000					
44.	Dendrœca striata	6000	11000				11000
45.	Dendrœca graciæ		7000			6000	7000
46.	Dendrœca nigrescens	9500	7800			5500	
47.	Dendrœca townsendi	5000	8000	10000		5500	8000
48.	Siurus auricapillus	8000					
49.	Siurus nævius	8000					
50.	Geothlypis macgillivrayi	6000	9000	9500		5000	9000
51.	Geothlypis trichas	6000	6000			Plains	6000
52.	Icteria virens longicauda	6000	6500			"	6500
53.	Wilsonia pusilla	9500	12000	11000		6000	12000
54.	Setophaga ruticilla	6000	8000			Plains	8000
55.	Vireosylvia gilva swainsoni	6000	10000	7000		5000	10000
56.	Lanivireo solitarius plumbeus	6000	9000	7500		5000	9000
57.	Lanius borealis	6–10000		12500	*–9500		12000?
58.	Lanius ludovicianus excubitoroides	9500		9500		Plains	9500?
59.	Ampelis garrulus				8000		
60.	Ampelis cedrorum		9000		5500		9000
61.	Petrochelidon lunifrons	6000	11000	9500		"	10000
62.	Hirundo erythrogaster	7000	11000			"	10000
63.	Tachycineta bicolor	8000	11000			"	10000
64.	Tachycineta thalassina	7000	11000	9500		5000	10500
65.	Cotile riparia		6000			Plains	6000
66.	Stelgidopteryx serripennis	6000	7000			"	7000
67.	Progne subis		8000			6000	8000
68.	Pyranga ludoviciana	6000	9000	10000		6000	9000
69.	Pyranga æstiva cooperi	5000					
70.	Hesperiphona vespertina	5000	8000				
71.	Pinicola enucleator	10000	11500	10000	*–10000	10000	11500

* Plains.

		Upper Limit of range in—				*Breeds—*	
		Spring	*Summer*	*Autumn*	*Winter*	*from*	*to*
72.	Carpodacus cassini	6000	10000	9000	*-7000	7000	10000
73.	Carpodacus frontalis		8000		5000	4000	8000
74.	Loxia curvirostra americana	6000	8000		Plains	5000	8000
75.	Loxia leucoptera				10000		
76.	Leucosticte tephrocotis				6000		
77.	Leucosticte tephrocotis littoralis				5-8000		
78.	Leucosticte atrata				5000		
79.	Leucosticte australis	12000	13500	13000	6-10000	12000	13500
80.	Ægiothus linaria	7-10000			*-10000		
81.	Astragalinus tristis	6000	10000	5000		Plains	9000
82.	Astragalinus psaltria	5000	9500	9000		5500	9500
83.	Chrysomitris pinus	6-10000	11500	10000	*-10000	7000	11500
84.	Plectrophanes nivalis (*Ridgway*)						
85.	Centrophanes lapponicus			7500	5000		
86.	Centrophanes ornatus	5000			5000		
87.	Rhyncophanes maccowni	6000			5000		
88.	Centronyx bairdi	5000	8000	7000		Pl'ns?	
89.	Passerculus sandwichensis savanna	5000	5000				5000
90.	Passerculus sandwichensis alaudinus	8000	12000			Plains	12000?
91.	Poœcetes gramineus confinis	4-10000	12000	12500		"	12000
92.	Coturniculus passerinus perpallidus		6000			"	6000
93.	Chondestes grammicus strigatus	6-9000	10000	9000		"	10000
94.	Zonotrichia leucophrys	6-10000	12500	10000	6000?	8000	12500
95.	Zonotrichia gambeli intermedia	6000					
96.	Spizella montana	9500			9000		
97.	Spizella domestica arizonæ	6000	9000	9000		5000	9000
98.	Spizella pallida	6000	6000			Plains	6000
99.	Spizella breweri	6-9000	8000			"	8000
100.	Junco aikeni	5-10000		9000	*-8000		
101.	Junco hiemalis	8000			*-7000		
102.	Junco oregonus	6000		11500	*-6000		
103.	Junco annectens	6-10000		10000	5000		
104.	Junco caniceps	6-10000	12000	9000	5000	7500	12000
105.	Amphispiza belli (*Ridgway*)		6500				6500
106.	Amphispiza belli nevadensis		7000				7000
107.	Melospiza fasciata fallax	6000	8000		5000	5000	8000
108.	Melospiza lincolni	6500	11500	9000		5000	11500
109.	Passerella iliaca schistacea (*Ridg.*)		7000				7000
110.	Pipilo maculatus arcticus megalonyx	9500	9000	8000	5000	5000	9000
111.	Pipilo chlorurus	7500	11500	9000		5000	11500
112.	Pipilo fuscus mesoleucus				5000		
113.	Pipilo aberti		8000				8000?
114.	Zamelodia melanocephala	6000	8000	8000		Plains	8000
115.	Guiraca cærulea		5500			"	5500
116.	Passerina cyanea (*Ridgway*)						
117.	Passerina amœna	6000	7000	7000		"	7000
118.	Cardinalis virginianus				5000		
119.	Spiza americana		6000	6000		"	6000
120.	Calamospiza bicolor	6-9200	8000	8000		"	8000
121.	Dolichonyx oryzivorus	6000					
122.	Molothrus ater	6000	8000			"	8000
123.	Xanthocephalus icterocephalus	6000	9500	9500		"	7500
124.	Agelæus phœniceus	6000	9000	7000		"	8000
125.	Sturnella neglecta	6000	9200	10000		"	8000
126.	Icterus spurius		5000			"	6000?
127.	Icterus galbula		5000			"	6000?
128.	Icterus bullocki	6000	10000			5000	10000
129.	Scolecophagus cyanocephalus	6000	10000	13000	4-9000	Plains	10000
130.	Quiscalus purpureus æneus		5000			"	5000
131.	Corvus corax carnivorus		13000	14000	5-10000		
132.	Corvus cyptoleucus		6000		5000	4000	6000
133.	Corvus frugivorus		7000	7000			7000
134.	Picicorvus columbianus	9000	11500	13000	7-9000	6500?	11500
135.	Gymnocitta cyanocephala	5000	8000	6-13500	6000	5000	8000
136.	Pica rustica hudsonica	9000	11000	10000	3-9000	4000	10000
137.	Cyanocitta stelleri macrolopha	6-10000	11500	13000	5-10000	5000	11500
138.	Aphelocoma woodhousei	5000	8000	9500	5000	5000	8000
139.	Perisoreus canadensis capitalis	†	†	†	†	8000	11500
140.	Eremophila alpestris leucolæma	5-10000	13000	13000	5-9000		13000

* Plains.

† Keeps near timber-line the year round.

		Upper Limit of range in—			*Breeds—*	
		Spring	*Summer*	*Autumn*	*Winter*	*from*	*to*
141.	Eremophila alpestris chrysolæma		7000			Plains	7000
142.	Tyrannus carolinensis	7500	6000			"	6000
143.	Tyrannus verticalis	6000	7000			"	7000
144.	Tyrannus vociferans	6000	7000			"	7000
145.	Myiarchus cinerascens		7000			4000	7000
146.	Sayornis sayi	6000	8000			Plains	8000
147.	Contopus borealis	6000	12000	10000		7000	12000
148.	Contopus richardsoni	6000	11500	10000		Plains	11000
149.	Empidonax difficilis	6000	10000	10000		"	10000
150.	Empidonax pusillus		8000	8000		"	8000
151.	Empidonax minimus	6000					
152.	Empidonax hammondi	6000	8000			"	8000
153.	Empidonax obscurus	6000	10500			7500	10500
154.	Trochilus alexandri (*Ridgway*)		6000				6000
155.	Selasphorus platycercus	5000	13000	9000		4000	11000
156.	Selasphorus rufus		15000			6500	10500
157.	Cypselus saxatilis	6000	13500			6000	12500
158.	Cypseloides niger borealis		14000	14000		10000	12000
159.	Phalænoptila nuttalli	6000	8000			Plains	8000
160.	Chordeiles popetue henryi	5000	12000	9500		"	11000?
161.	Picus villosus harrisi	6–10000	11000	10000	5–10000	4500	11500
162.	Picus pubescens gairdneri	6–10000	12000	10000	5–10000	4500	11500
163.	Picoides tridactylis dorsalis	10000	12000	10000	10000	8000	12000
164.	Sphyrapicus varius (*Ridgway*)						
165.	Sphyrapicus varius nuchalis	8000	12000	9500		4000	12000
166.	Sphyrapicus thyroideus	6000	10000	7000		5000	10000
167.	Centurus carolinus (*Ridgway*)						
168.	Melanerpes erythrocephalus	6000	11000	5000		Plains	10000
169.	Melanerpes torquatus	6000	8000	7000	4–7000	5000	8000
170.	Colaptes auratus mexicanus	6–10000	12000	12000	3–5000	Plains	12000
171.	Ceryle alcyon	9500	9500			"	9500
172.	Geococcyx californiainus		5000		5000		5000
173.	Coccyzus americanus		8000			4000	8000
174.	Conurus carolinensis	†	†	†	†		
175.	Asio americanus	6000	11000	10000	*–10000	Plains	11000
176.	Scops asio maxwellæ		6000	5000	5000	4000	6000
177.	Scops flammeolus		8000			-	8000
178.	Bubo virginianus arcticus	11000	11500	13000	*–11000	4000	11500
179.	Speotyto cunicularia hypogæa	‡	‡	‡	‡	Plains	9000
180.	Hierofalco mexicanus polyagrus	6000	10000	10000		"	10000
181.	Falco peregrinus nævius		10000			"	10000
182.	Æsalon columbarius		9500			"	
183.	Æsalon richardsoni	6000	11000			"	
184.	Tinnunculus sparverius	6–10000	11500	13000		"	11500
185.	Pandion haliaëtus carolinensis		9000	10500			9000
186.	Circus hudsonius	6000	10000	13500		"	10000
187.	Accipiter cooperi	6000	9000			"	9000
188.	Accipiter fuscus	9500	9000			"	9000
189.	Astur atricapillus striatulus	9500	10000		9500		10000
190.	Buteo borealis calurus	11000	12000	13500	*–10000	"	12000
191.	Buteo cooperi (*Ridgway*)						
192.	Buteo swainsoni	6–10000	10000	13000		"	11500
193.	Archibuteo lagopus sancti-johannis				6000		
194.	Archibuteo ferrugineus	6000			6000		10000?
195.	Aquila chrysaëtus canadensis	6–10000	12000	14000	*–11000	6000	12500
196.	Haliaëtus leucocephalus	8000					
197.	Cathartes aura	6000	10000	11000		Plains	
198.	Columba fasciata	7000	8000	8000		5000	8000
199.	Zenaidura carolinensis	6000	11000	12000		Plains	10000
200.	Melopelia leucoptera		11500				
201.	Meleagris gallopavo americana		7000				7000
202.	Canace obscura	10000	11500	12500	7–10000	6000	11500
203.	Bonasa umbella umbelloides		7000				7000
204.	Lagopus leucurus	12000	13500	12000	8–12000	11500	13500
205.	Cupidonia cupido	5000	5000	5000	*	Plains	5000
206.	Pediœcetes phasianellus columbianus	7000	7000	7000	*–7000	"	7000
207.	Centrocercus urophasianus		9500		*–7000	"	9500
208.	Ardea herodias		5000				5000
209.	Garzetta candidissima	§	§	§	§		

* Plains.

† See B. N. O. C., Vol. II, No. 2, p. 50.

‡ Resident and breeds up to 9000 feet.

§ See American Naturalist, Vol. X, p. 430.

		Upper limit of range in—				*Breeds—*	
		Spring	*Summer*	*Autumn*	*Winter*	*from*	*to*
210.	Nyctherodius violaceus (*Ridgway*)	*					
211.	Botaurus lentiginosus	5000	7000			Plains	7000
212.	Tantalus loculator (*Ridgway*)						
213.	Plegadis guarauna		7000				7000?
214.	Charadrius dominicus (*Ridgway*)						
215.	Oxyechus vociferus	9000	10500			"	10500
216.	Podasocys montana	6000	8000	5000		"	8000
217.	Gallinago media wilsoni	10000	10000		5000	6000	10000
218.	Macroramphus griseus	6000	5000				5000?
219.	Actodromas maculata			10500			
220.	Actrodomas bairdi		7000	13000			7000?
221.	Actrodomas minutella		7000				7000?
222.	Pelidna alpina americana (*Ridgway*)						
223.	Ereunetes pusillus	7000		7000			7000?
224.	Limosa fedoa			7500		Plains	
225.	Totanus melanoleucus		7000				7000?
226.	Totanus flavipes		7000				7000?
227.	Rhyacophilus solitarius	6000	10000			5000	10000
228.	Symphemia semipalmata	6000	7000				7000
229.	Bartramia longicauda	6000	6000			Plains	6000
230.	Tringoides macularius	6000	13000	9000		"	11000
231.	Numenius longirostris		5000			"	5000
232.	Lobipes hyperboreus	9500	8000		5000		
233.	Steganopus wilsoni (*Ridgway*)		6000				6000
234.	Recurvirostra americana	5000	8000			"	8000
235.	Himantopus mexicanus	5000	8000			"	8000
236.	Rallus virginianus		5000				5000?
237.	Porzana carolina (*Ridgway*)		7000				7000
238.	Gallinula galeata (*Allen & Brewster*)	6000					
239.	Fulica americana		8000			"	8000
240.	Grus americana (*Ridgway*)						
241.	Grus canadensis		7500	14000		5000	7500
242.	Chen hyperboreus			8000	7500		
243.	* Bernicla canadensis	10000	10000				10000
244.	Bernicla canadensis hutchinsi				5000		
245.	Anas boschas	6000		10500	*-9500	5000	9000
246.	Anas obscura (*Ridgway*)						
247.	Chaulelasmus streperus		8000	10000		Plains	8000
248.	Dafila acuta		6000		5000		6000
249.	Mareca americana		8000	8000		"	8000
250.	Spatula clypeata	6000	8000				8000
251.	Querquedula discors	10000	8000	10000		"	8000
252.	Querquedula cyanoptera	6000	8000	10000		5000	8000
253.	Nettion carolinensis	10000	8000	10000		Plains	8000
254.	Aix sponsa		8000				8000
255.	Fulix marila			9000			
256.	Fulix affinis			9000			
257.	Fulix collaris			6000			
258.	Æthya vallisneria				5000		
259.	Æthya americana (*Ridgway*)						
260.	Clangula islandica		8000				8000
261.	Clangula glaucium americana			9000			
262.	Clangula albeola			6000			
263.	Histrionicus minutus		10000	10000		7000	10000
264.	Œdemia americana (*Ridgway*)						
265.	Erismatura rubida		10000	11000		7000	10000
266.	Mergus merganser americanus		11500				
267.	Lophodytes cucullatus (*Ridgway*)						
268.	Pelecanus erythrorhynchus (*Ridg.*)		4000				4700
269.	Larus delawarensis	6000	6000	9500			6000
270.	Xema sabinei (*Ridgway*)						
271.	Sterna forsteri (*Aiken*)	6000					6000
272.	Hydrochelidon lari. surinamensis				5000		
273.	Stercorarius parasiticus (*Ridgway*)						
274.	Podiceps holboelli			10000			
275.	Dytes auritus californicus	7000	8000				8000
276.	Podilymbus podiceps (*Ridgway*)						
277.	Colymbus torquatus (*Ridgway*)						

* Plains.

OBSERVATIONS ON *ELANOIDES FORFICATUS* AND *ICTINIA SUBCÆRULEA* IN KANSAS.

BY N. S. GOSS.

THE Swallow-tailed Kite is an irregular summer resident along the timbered streams, being abundant some seasons and rare others. It arrives early in May, and devotes the first few days to courtship and mating, the next to selecting nesting places, which I have so far found to be in the small branches near the tops of the tallest trees. By the last of the month the nests are completed, and as the trees by that time are in full leaf they are largely hidden from view. They are made of sticks loosely interwoven and lined sparingly with the soft, ribbon-like strippings from the inner bark of old, decaying or dead cottonwood trees. The eggs are oval; the ground-color is cream white, irregularly spotted and blotched with dark reddish brown, running largely together towards the small end. The measurements of three are 1.84 × 1.48, 1.87 × 1.50, 1.90 × 1.50.

As the nests are hard to reach, I have been able to examine but four. Three of these had only one egg in each; in the other there were two eggs, nearly ready to hatch, and the shell of one at the foot of the tree; but I have it on good authority that in the near vicinity a nest with four, and another with six, eggs have been found. The males assist in building the nest, alternate in sitting and in feeding the young, and, in fact, appear as attentive as the females.*

April 27, 1876 (the earliest arrival noticed), a pair put in an appearance at Neosho Falls, and as they continued to circle in their graceful flights over the same grounds—the edge of the prairie and timber on the Neosho River—I became satisfied that their nesting places would be selected within the circle, and I devoted my leisure moments to watching their movements. On the 5th of May they were joined by another pair, and later in the day, to my great surprise and joy, two pairs of Mississippi Kites

* I saw a pair of these birds once in the act of copulation. They were sitting on a small, horizontal limb close together and facing each other, when, quick as a flash, the female turned or backed under the limb, the male meeting her from the top.

appeared and also joined in the circling flights. It was a beautiful and, to me, exciting sight to watch their various motions and coqueting evolutions, sailing high in the air, swooping down with partially closed wings, skimming along the prairie, lost for a moment in the woods, ascending in spiral flights, gliding from slow to swift and swift to slow without a flit or break, like Swallows. For grace and symmetry of action I would rank them first among the aërial birds, attaching the blue ribbon to the Swallow-tailed. Unfortunately I was called away on the 8th and did not return until the 18th. At first I thought the birds had left, but I soon occasionally noticed one here and there flying low down and often disappearing in the tree-tops. I lost no time, but hastened, with glass and gun in hand, for the timber embraced in their former flights, and in a short time had the pleasure of finding a pair of the Swallow-tailed Kites building a nest in the top of a large hickory tree, the nest being about two-thirds completed; by cautiously approaching and lying down behind a fallen tree I was enabled to watch them unobserved. and, with the aid of the glass, to plainly see them at their work. When either came to the nest alone with a stick it would place it hurriedly upon the nest, but when both met at the nest they would at once commence fussing about, pulling at the sticks and trying to arrange the material, first one getting upon the nest, and then the other, turning around as if trying to fit a place for their bodies. I think at one time they must have worked at least ten minutes trying to weave in or place in a satisfactory manner a stripping from the inner bark of the cotton-wood. As builders they are not a success. After a little over two hours of watching I turned my attention to hunting for the nests of others. In this I failed, but found near by, sitting on the dead limb of an oak, a pair of Mississippi Kites, busily engaged in dressing up their feathers. My anxiety to secure a pair for my collection overcame the desire for their eggs, especially as the birds are rare in the State and the finding of their nest doubtful; I believed I could get both by shooting one from the tree and the other on the wing as it left; so I carefully crawled to within easy shooting distance, sprang to my feet, shot one, and to my surprise the other did not fly, but with outstretched wings looked down with astonishment at its mate fluttering upon the ground. It was too good a shot to lose and I dropped it beside the other,

and proudly started for home, more than satisfied with my success.

On the 27th of the same month I found the other pair of Mississippi Kites nesting in the fork of a medium sized oak, about forty feet from the ground. It was *an old Crow's nest* fitted up with a few extra sticks and green twigs in leaf for lining. In the nest there was one egg. I returned on the 2d of June for the eggs, found the nest robbed and the birds sitting in a tree near by, but they appeared to take no notice of, or interest in, the nest as I approached it. On July 5, in strolling over the grounds, I noticed one of the birds on the same nest. In it there was one egg in an advanced state of incubation, but with care I was able to save it. Color, pure white; measurements, 1.70 × 1.35. This nest and the ones examined of *E. forficatus* were on the breeding grounds of the common Crow, which accounts for the robbery and the few eggs found.

MANITOBAN NOTES.

BY ERNEST E. T. SETON.

On the 8th of May I found a pair of the *Bubo virginianus arcticus* in possession of an old nest, in the 'Big Swamp' on the Assinaboine River, south of the 'Big Plain.' This nest was indistinguishable from that of a Red-tailed Buzzard. On the 15th of May I went with my friend Dr. Gilbert and we brought home the three young ones and the adult female. The nest contained two Partridges (*Bonasa*) and a hare. The young ones appeared to be about three weeks old; the largest weighed 1 lb. 5 oz., and was about the size of an ordinary pullet. One of the young ones was but half the size of the others; all were clad in white down, with the rudiments of black and white feathers showing in the wings and on the back. Their horns were plainly visible in the form of down tufts.

The young ones favored us with the usual amount of bill-snapping and hissing, but did not use their tremendous claws. One of them was injured and died before we got home, the

others thrived and readily ate from our hands from the first. They solicited food by a short scream very like that of a Night-hawk; they menaced by snapping their bills and hissing, and they expressed surprise and anger by a querulous, rattling whistle.

By the time they were about two months old they were fully fledged and could fly fairly well. In general color they were pale buff with black bars; a little lighter than the typical *Bubo virginianus*, but considerably darker than the mother. At this time the horns were less conspicuous than when in the down.

They ejected a pellet about five times per week, and if supplied with more food than they require for present use they hide it until they are hungry.

At first we (Dr. Gilbert and myself) were in hopes of taming them, but their ferocity grew with their growth; and when they were able to fly, so far from submitting to handling, it was not safe for a stranger to come near them. No better illustration of their temper could be given, than the fact that on one occasion when they were left without food for a longer time than usual, they killed and ate a fine, full-grown Swainson's Buzzard, which was confined in the same barn. And on a second occasion they did the same with another Swainson's Buzzard which I had always thought quite strong enough and quick enough to take care of himself.

At the age of about ten weeks, a perceptible change in their plumage began to take place; the buffy feathers of the breast gradually giving place to the pure white of the old birds; amounting almost to a transition from the *B. virginianus* form to that of the *B. v. arcticus*. They are now over four months old, and are still growing. They require about half a pound of meat per day, and eat with relish only that which is perfectly fresh; indeed, all that I have seen of them—their untameable ferocity, which is daily more apparent, their magnificent bearing, their objection to carrion and strictly carnivorous tastes—would make me rank these winged tigers among the most pronounced and savage of the Birds of Prey.

I find that the Common Harrier (*Circus cyaneus hudsonius*) indulges in a series of curious manœuvres, which have hitherto escaped the eyes of field-men. During the breeding season the male often flies about over his own particular marsh, with

excessively exaggerated undulations; squeaking like a Snipe as he rises, and dashing down silently. When at the highest point he frequently turns a somersault. I have seen this many times, and shot the bird in the act.

It may surprise some to learn that the Lapland Longspur (*Plectrophanes lapponicus*) is very abundant here in the spring and fall.

Our *Plectrophanes* are:—

P. nivalis, abundant in winter—a few staying to breed.

P. lapponicus, enormously abundant in May and September.

P. pictus, very abundant, accompanying the last-named.

P. ornatus, abundant, breeding.

During the months of July and August the Bay-winged Bunting (*Poœcetes gramineus*) ceases its usual vesper song, and vents his feelings in a loud, wild, Lark-like chant, which is poured forth as the bird rises high in the air; he begins to sing as he leaves the prairie, and sings and soars till he has reached a height of fifty or sixty feet, when he again returns to earth.

This air-song is not heard nearly as frequently as the common perching-song is in its proper season, nor have I heard both at the same time of year. The perching-song alone is heard during May and June, and again after the fall moult there is a renewal of the spring chantings—an aftermath of song, for the bird ceases his soaring lay, and once more sings for the setting of the sun.

Another peculiar effusion of the Bay-wings is a prolonged twittering, uttered after dusk, as the bird runs on the ground. It is like a soft, continuous whispering of extracts from his various other musical performances.

As little seems to be known about Leconte's Sparrow (*Coturniculus lecontii*) I may describe some of its habits. This bird frequents the damp meadows which are a mixture of red-willows and sedgy grass. It is commonly found in the willows at all seasons, uttering its peculiar ventriloqual *tweete tweete*, whence I knew it as the 'Willow-tweete,' long before I ever heard of Leconte or of any name for this bird. But in spring the male may be seen perched on some low twig in the meadow, pouring out his little soul in a tiny, husky double note, like *reese reese*. This is so thin and weak as to be inaudible at thirty yards, yet in uttering it he seems to labor hard, his beak being wide open and pointed straight up to the zenith; he delivers it with such unction

that afterwards he seems quite exhausted, and sits very still until at length the fit comes on again, as it is sure to do in about ten seconds.

On the 26th of June, 1882, I found the nest and eggs, which I believe were previously unknown. The nest was by a willow bush in the damp meadow; it was apparently on the ground, but really raised six inches, being on the tangle of grass, etc. It was composed entirely of fine grass. The eggs—three in number—were of a delicate pink, with a few spots of brownish and of black towards the large end. The pink was lost on blowing them. One measured .75 × .50 inches. Yet I must confess I did not shoot the birds at the nest; I only saw them a few yards off and heard their familiar *tweete*. So that there is possibility—though little probability—of error here.

ON THE FUNCTION OF THE INFERIOR LARYNX IN BIRDS.

BY J. M. W. KITCHEN, M. D.

Assistant Surgeon to the Metropolitan Throat Hospital, N. Y.

IN looking over the literature pertaining to the comparative anatomy and physiology of the vocal organs, we have repeatedly met certain statements which we think are incorrect physiological deductions, following the anatomical study that has been given to the vocal organs of Singing-birds. The great Cuvier was apparently one of the first scientists who gave this subject much study; and, with one exception, all subsequent writers whom we have read, whether French, German, or English, have substantially reiterated Cuvier's statements as to this matter. Indeed, there has been such unanimity of expression, and such similarity in the cuts shown in illustration of the subject, that one is induced to believe that Cuvier's exposition of the subject has been copied *in toto*, without personal investigation on the part of the writers.

The essential part of these statements is that the inferior larynx of birds, or syrinx as it is often called, is the principal agent employed in producing the tones of bird-song, and that the superior larynx is not a phonator, but only acts as a valve, preventing air and food from passing the laryngeal fissure. S. Messenger Bradley is the only writer whom we have read, who dissents from this deduction; and in this dissent we also take part. To be sure, our dissent is only a matter of opinion, and one that we are not prepared to substantiate by actual scientific proof, but it is an opinion that is the outcome of a very considerable study of the working of the human larynx, both in health and in disease, and one capable of considerable sustenance through analogous reasoning. It is an interesting subject on which more light is needed, and when one considers that the physiology of the human larynx is not yet fully understood, it will be conceded that there is a wide field still open for study of the vocal apparatus of birds. It is hoped that some one endowed with sufficient leisure and enthusiasm may take up the subject and pursue it to a successful issue.

The vocal mechanisms in man and bird differ very considerably, though there are analogous structures and functions in both animals. Birds have true voice, and even speech, though the speech of birds is very simple in character, and relates more to the *feelings* than to the *thoughts* of these creatures; but the so-called singing of birds is not song as rendered by man, who has no similar production of sounds, though an asthmatic wheeze produced in the bronchial tubes, and whistling with the tongue and teeth, or with the lips, approximate, in their mode of production, to the vocal efforts of the Song-birds. To thoroughly understand the subject, one must have a fair idea of the anatomy and physiology of the vocal apparatus in man.

It is presumed that the reader understands the ordinary laws pertaining to acoustics; that sound is the effect of air in peculiar vibratory motion upon the auditory apparatus; and that the character of vocal sounds as to pitch, intensity, timbre, etc., are due to the frequency and amplitude of the vibrations, and to the peculiarities of the structures that originate them as to shape, density, etc. The vocal sounds of man are produced by an apparatus that in gross, is substantially as follows: (1) A bellows or air propeller, consisting of the lungs, surrounded by the chest

walls at the sides, and by the diaphragm at the bottom. The muscular motion in these parts alters the shape of the chest, alternately enlarging its cavity and drawing air into the lungs; and then compressing those organs, driving out the air *via* the bronchial tubes, trachea, larynx, nasal passages, and mouth. (2) The phonating structure, which is the larynx, having a framework of cartilages known as the thyroid, the cricoid, and the two arytenoids; but whose essential parts are the two fibrous lips, or projections from the sides of the larynx, known as the vocal cords or ligaments, and the muscles that are attached to these ligaments and cartilages, for the purpose of rendering the former more or less tense, of drawing them apart, or of approximating their edges to various degrees, and of regulating their shape. The interposition of these vocal ligaments in various degrees of tension, approximation, etc., in the tract of the air-blast coming from the lungs, is the means of breaking up the air-column into the vibrations which produce the effect upon the ear known as vocal sounds. (3) The resounding cavities, which modify the sounds as to their power and other qualities. These cavities are the trachea and bronchial tubes, which reverberate the chest tones, and the throat, mouth, and nasal passages, which are instrumental in forming the head tones. The various positions and actions of these latter cavities and their contained parts, such as the tongue and soft palate, give the various effects of articulation to speech, as well as song. It must be noted that there is no dividing line between speech and song, the one gliding into the other, and that articulation is distinct from phonation. A whisper may be articulated speech, without sound being produced by the larynx.

This in brief being the structure of the human vocal apparatus, how does that of birds differ from it? (1) In the respiratory method, and in the structure of the respiratory mechanism. Almost the whole body of the bird is the air-bellows and reservoir. There is no diaphragm separating the chest cavity from the abdominal cavity, or at least it is very rudimentary, excepting in some birds like the Apteryx, where it is more nearly like that of mammals. Air passes through the bird's lung and out of it by numerous apertures on the pulmonary surface, to the various air cavities of the abdomen, neck, bones, etc. Here is a very large pneumatic storage cavity. In birds, the

expiration of air is effected by a decided muscular effort, drawing the largely developed breast-bone towards the spine, and this forces the air out of the body, while inspiration, or the drawing of air into the body, is the result of the resilient recoil of the breast-bone, and the rest of the tissues making up the chest walls. This action is just opposite to the respiratory method in man, where ordinary inspiration is effected by decided action on the part of the respiratory muscles, especially of the chief respiratory muscle, the diaphragm. This physiological peculiarity in birds gives them the ability to emit such powerfully loud and long-continued notes with little apparent effort. This is particularly to be noticed in small birds, such as the Canary and Black-poll Warbler. (2) The resounding cavities and articulating structures are very different from those in man. The trachea is a very much more distensible tube. Its rings are bony and complete. It is formed so as to be retracted or distended to a remarkable degree, through the action of the peculiar external tracheal muscles. This construction enables the organ to produce the effects of pitch or range in the notes of the musical scale, and also makes a good resounding medium, being in this respect analogous to an organ pipe. In the throat and mouth we find no soft palate, or pharyngeal vault, and hardly a trace of an epiglottis. Birds are very deficient in their powers of articulation, owing to the peculiarities of construction in the throat and mouth. The fleshy tongue of the Parrot gives that bird exceptional powers in this respect; but even the stiff, horny, and comparatively immobile tongue of other birds is capable, by its action, of producing the 'twittering,' 'whistling,' and other effects. The muscular flooring of the mouth, by its ability of contracting in a rapid fluttering manner, is very evidently capable of producing the 'warbling' effect. (3) The third and most marked deviation in birds from the vocal mechanism of man, is in the phonating or tone-producing structure. Instead of having one concentrated 'vocal box,' located at the top of the trachea, and which in itself contains all the parts necessary for regulating the pitch and some other qualities of the tone produced, birds have two larynges: the superior larynx being located as in man at the top of the trachea, while the inferior larynx or syrinx, is located at the inferior extremity of the trachea, at its point of bifurcation into the right and left bronchial tubes. This complex construction, that may be used for

vocal purposes, at first view seems very much like certain musical wind instruments. The true rima glottidis at the upper part of the windpipe simulating the outlet of the instrument, while the bronchial larynx is furnished with a peculiar tense membrane that looks as if it might perform the same duty as the reed in a clarionet. This is probably true in a certain degree, but no instrument has ever yet been able to imitate the best of bird-song.

The *superior larynx* is noted for its simplicity of construction and moderate functional action, in comparison with the larynx of man. As one examines it, the rigidity of the organ is conspicuous. Several of the upper tracheal rings are fused together and represent the human cricoid cartilage. Resting on this, forming the anterior part of the rim of the structure, is an oval or triangular thyroid cartilage. But at the rear of the organ, in place of the two pyramidal arytenoids, as in man, we find a large broad sesamoid plate running across the posterior wall, and on either side are two small cartilages connecting this plate with the thyroid, thus completing the circle of the laryngeal framework. The two arytenoids rest on top of this framework on either side, running well forward, and their inner margins form the rima glottidis, and this rim is the only substitute for the vocal cords of man. As we look inside of the organ we find no trace of those ligaments. The muscles of this structure are two. A surrounding sphincter muscle which closes the rim of the organ more or less tightly; and a pair of *thyreo-arytenoidei* which open the laryngeal fissure by drawing apart its rims. This fissure, in opening, is drawn furthest apart anteriorly, while in the human larynx the attachment of the vocal ligaments are close together in front, and they open widely at the back of the organ when the glottis is dilated during inspiration. Although this simple larynx has small functional ability, it is the point at which the true voice of birds is formed; especially the voice that is analogous to that of man; the voice that is peculiar to all the Clamatores. The Oscines are really not *singers* in the fullest sense of that word. Besides being able to break up the outgoing current of air into the vibrations which produce the rather coarse, harsh, and monotonous voice of the Clamatores, the rim of the glottis, in certain degrees of approximation, can produce the 'hiss' and a sort of 'whistle' similar to the

sound produced by the double concave, perforated tin mouth-piece of the children's toy that is frequently seen. This rim, by its vibrations when articulated by the highly developed tongue of the Parrot, produces the nearest approach to human singing of which birds are capable. Of course the much repeated ditty of a trained Polly is nearly destitute of variation in the pitch of the tones produced, any range in this respect being produced by differences in the strength of the air-blast, distension of the trachea, and change in shape of the mouth cavity. There is no muscular apparatus furnished for making any tension on the extremities of the rim of the glottis in birds.

The *inferior larynx*, or *syrinx*, is an organ peculiar to birds. Its parts are merely a different evolution and functional development and modification of the cartilaginous rings, mucous membrane, and muscular fibres seen in the trachea and bronchi of mammals. The structure varies widely in different birds, being most complex as a rule in the most able songsters. It may be highly developed in birds which are not ranked among the singers. This organ seems to have originally been called forth as a secondary valve, acting as an auxiliary to the superior larynx in closing the air passage leading to the lungs, during submersion of the heads of the aquatic birds. In most Ducks the lower larynx is expanded into an irregular bony case, divided into two unequal cavities. These cavities would undoubtedly add resonance to voice formed at the superior larynx. They would also act as a float, tending to make the upper part of the chest more buoyant. The inferior larynges in those birds examined by the writer are so constructed that some of the parts are very delicate, thin, and easily folded, thus enabling a closure of the air tract at this point to be easily accomplished, even by a simple recession of the neck. The bronchi are especially compressible and easily lacerated. They are strengthened by half-rings on the outer side, the inner being formed by a membrane that has been called the *membrana tympaniformis*. In most vocal birds the syrinx has a double glottis, one on either side of a bony bar, called the *os transversale*, which runs from before backward at the apex where the inner sides of the bronchi join. It supports a thin membrane which ascends into the trachea, and terminates in a thin, concave margin, called the *membrana semilunaris*. This is most developed in singing birds, and being vibratile forms an important part of their

'trilling' apparatus, the air passing to and from the lungs on each of its sides. Some of the outer bronchial half-rings are susceptible of a rotary motion on their axes, and are important agents in modifying the voice. Opposite the *os transversale*, on the outer sides of the bronchi, is a sort of fold of mucous membrane that presents a lip or projection something like the vocal ligament in the human larynx. There is one to each bronchus. This projection is probably formed by the process of the shutting up of the syrinx when the neck is retracted, and is really more the analogue of the ventricular fold in the mammalian larynx than of the vocal cord. There is no doubt but that this lip, when approximated to the 'cross-bone,' is capable of throwing the air current coming from the lungs into vocal, or rather sound vibrations. Every one has heard the 'squeak' that a fowl often emits when hopping about with its head cut off, and it is probable that the sound is produced by the syrinx. Several small muscles, varying in number from two to five, and which appertain to the lower larynx exclusively, coil around it, and enable it to make tense the tympaniform membrane, to close up the glotti, and to rotate its framework. An examination of the syrinx indicates that it undoubtedly may have an influence in the modification of the voice in its intensity, and in production of the 'trill.' The valve being shut, and the muscles of expiration being brought into play, a greater air pressure in the body can be brought to bear on the structures which throw the air-blast into vibration, and the gradual opening and shutting of this valve would give crescendo and decrescendo effects to the notes. It is even probable that some of the notes originate here, and are only modified on their way to the outer world through the upper air-passages, but this cannot be to so great a degree as is widely stated. The Blackbird has a curious 'querl' in its song, that seems as if it originates as deep down in the bird as this organ is located. We have spent many a spare moment observing the Blackbird in the Aviary at Central Park, trying to detect the exact location of the production of this sound. It is related that Cuvier cut the trachea across the neck at the middle, and even took away the upper part of the trachea in the Magpie, and yet, it is stated that the bird continued to cry as before the operation, the voice not being less strong or sharp. We should want to thirst for a knowledge of comparative physiology more than at present before repeating so cruel

an experiment; but we doubt the accuracy of this narration, and we should want to hear the subject of such an experiment really sing before believing that the syrinx is the seat of tone production. It would be enormously difficult to keep a bird alive after such an operation, to say nothing as to its regaining a condition of full health, or a condition in which it would feel like singing. A mere production of audible sound from the inferior larynx would not be accepted as the song tones of the bird. Man can produce a tone by the vibrations of the lips, but the vocal ligaments are the voice phonators for all that. The syrinx of a bird may be able to make a noise, but that does not prove that the superior larynx has nothing to do in the formation of the song of birds. However, we are open to conviction, and would gladly be set right by proof positive that our opinion as to this matter is wrong.

NOTES ON THE OCCURRENCE OF CERTAIN BIRDS IN THE MISSISSIPPI VALLEY.

BY W. W. COOKE.

DURING the progress of my studies of migration, I have been in correspondence with most of the active ornithologists in the Mississippi Valley. Among the notes they have contributed are some which seem worthy of being put on record. They may not all of them be first records for their section of country, but the occurrences are at places remote enough from the ordinary habitat to be worthy of note.

Hawk Owl in Northeastern Mississippi.—Among a list of birds occurring at Corinth, Miss., sent me by Dr. Rawlings Young, was the name of the Hawk Owl (*Surnia funerea*). Upon asking for the particulars of its capture, I received the following letter:—

"In reply to your question, I would say that I have never heard of but one being killed near here and that I shot myself. In 1882 I was shooting Quail over a brace of setters in thick sedge grass, three or four hundred yards from the timber, and while working up a scattered bevy the dogs pointed. Walking in, the Hawk Owl, much to my astonishment, got up from the grass, right under the dogs' noses. As he went off I cut him down and had no trouble in identifying him from the cuts seen in Wilson."

Abundance of Black-bellied Plover (*Squatarola helvetica*) **in Eastern Nebraska.**—In the bird list sent by F. Powell, Alda, Neb., occurs the item: "Black-bellied Plover, usually rare, but May 21, 1883, I saw thousands of them on the Platte River." In reply to further questions he writes: "The weather had been rainy for a few days before I saw the Black-bellied Plover, with the wind from the south, but on that day the wind blew stiff from the north, with broken clouds flying and the air pretty cold. The birds were on the hay flats on the south side of the river. I drove up the valley seven or eight miles and was not out of sight of large flocks any of the time. They were very wild and I only killed three."

Perissoglossa tigrina in Nebraska.—The same observer also states: "On May 12, 1883, I took a Cape May Warbler, an old male in good plumage. A few days later, I thought I saw three more, but had no gun with me."

Protonotaria citrea in Wisconsin.—In Dr. P. L. Hatch's 1880 list of Minnesota birds this Warbler is not given, nor can I find any Wisconsin record. It is therefore with the greatest pleasure that I am able to record that Dr. J. C. Havoslef of Lanesboro, in Southeastern Minnesota, shot one on Aug. 16, 1874, near the mouth of the Root River, on the Wisconsin bank of the Mississippi.

Lark Bunting in Southeastern Minnesota.— In the same list of Minnesota birds *Calamospisa bicolor* is given as occurring in the northeastern part of the State. Since then it has been found—whether accidentally or not remains to be seen—in the southeastern part. Dr. Havoslef sends the following particulars: "Saw one, a magnificent male, on the very high prairie seven miles north of Lanesboro, June 19, 1883. It was not at all wary, so that I very easily got within a few yards of it, and could even see the peculiar shape of the bill. My shot, however, was not successful, as the weapon was only a small pistol, and the wind was blowing a gale. Business prevented my returning with a shot gun." This spring he writes me that "May 11, on the high prairie, nine miles east of Lanesboro, I again saw a *Calamospisa bicolor;* there was only one and it was wild, while the one I saw a year ago was quite the reverse."

Junco aikeni in the Indian Territory, Kansas, and Wisconsin.—While standing at the window of my house in Caddo, Ind. Ter., which is in the southeastern part, about thirty miles from the Texas line, my attention was drawn to a small party of Fringillidæ in the yard, about fifteen feet from me. There were half a dozen Tree Sparrows, a few Juncos, and a stray *Passerculus*, but what attracted my attention was one of the Juncos. It was slightly larger than the others, much darker, and across its wings stretched two broad bands of white. I had heard and read of the White-winged Snowbird, but had never seen one. As I watched it intently it spread its tail and revealed at least four feathers entirely white, and apparently white spots on four more. Turning now to the others I found that one very dusky individual had faint wing-bars and the extra white tail feathers. The moment I started for a gun the whole party left. On men-

tioning the fact to my wife, she told me she had also noticed one in the forenoon, but knew not that it was of special interest. This was Feb. 14, 1884. The next day I examined over fifty individuals of Junco but never a wing-bar was visible. Under Feb. 21, I find the following entry in my diary: "At 8.30 A. M. I shot in my yard a White-winged Snowbird. It is in worn plumage, but appears to be a typical bird; both wing-bars show plainly, the tail has two feathers on each side pure white, and the third one more than half white. It was in company with a second which appeared to be in brighter plumage. This makes five specimens seen, two bright and three dull ones. They were each time associated with a party of Tree Sparrows that has stayed around my premises all winter, so that there may have been but two individuals and the same ones seen several times." On March 7 a single one was seen. This completes the record for Caddo.

Late in the winter a box of skins arrived from Wisconsin which I had prepared the previous spring. On comparing my new Snowbird with the old ones, I was not a little surprised to find among them its counterpart. This second specimen bore a tag which showed its history to be as follows. The morning of Jan. 14, 1883, it was found alive in my woodshed at Jefferson, Wis., in the southern part of the State. It was kept alive three days, and when it died its skin was saved. Both specimens are still in my possession.

This species was originally described by Mr. Aiken in 1872, from specimens taken in the mountains of Colorado, where the species is abundant. Three years later it was taken at Ellis, in Western Kansas, by Dr. L. Watson. It has been found nowhere else. The past winter Dr. Watson again found the species in the same locality, so that it may be considered a regular winter visitant to Western Kansas, but its occurrence in the Indian Territory, and especially in Wisconsin, is probably fortuitous.

THE NESTING HABITS OF THE CAPE MAY WARBLER (*DENDRŒCA TIGRINA*).

BY MONTAGUE CHAMBERLAIN.

My first acquaintance with the Cape May Warbler in its home was made during the summer of 1882, when our party secured several specimens in the heavy woods back of Edmundston, near the northern boundary of New Brunswick. Previous to this I knew nothing of the occurrence of this species in this Province except what I had learned from Mr. Boardman of its

occasional appearance near the Maine border during the breeding season. A year later, in July, 1883, Mr. Arthur P. Chadbourne captured a solitary example at Rothesay, some nine miles east of this city (St. John), and this completed the record until June, 1884, when the nest and eggs were discovered just outside the city limits by my friend and co-worker in this locality, Mr. James W. Banks. For this is Bank's story that I am telling, he, with characteristic generosity, desiring my name to be associated with its rehearsal.

The birds seen and heard at Edmundston were invariably on the topmost branches of the tallest evergreens (usually spruces) growing in the neighborhood. Our experience furnished us with good and sufficient reason for remembering this fact. As the birds were constantly singing, their general whereabouts was easily discovered, but no small amount of patient searching was required to catch sight of them; and we soon found out that after sighting and shooting a bird there was still much to be gone through before it was in hand; for after tumbling a short distance it usually staid. The trees were too stalwart to be moved by any shaking power we could command, so every successful shot entailed a climb—and such a climb! The branches of these spruce trees were so close together we had to call up all our reserve of muscle and skill to squirm through; and in addition to this we had to encounter the annoying twigs—rough, sharp little things, with which the branches were thickly studded, and which tore clothes, scratched faces, pricked the flesh as they rolled down underneath our flannels, and made themselves generally disagreeable. And so it came about that the Cape May was associated in my mind with the stately trees and the solitude of deep forests —a solitude broken by the merry notes of these songsters, the chatter of squirrels, the sigh of the swaying boughs, and by the strong language of exhausted and exasperated collectors; and, because of these recollections, I was altogether unprepared for my friend's announcement that a pair had built in a location of an almost exactly opposite character. This nest found by Banks was hid among a cluster of low cedars growing in an exposed position, on a rather open hill-side, near a gentleman's residence, and within a stone's throw of a much frequented lane. The nest was placed less than three feet from the ground and within six inches of the tips of the branches, amid the densest part of the

foliage, by which it was well screened from observation. It was fastened to two of the tiny branchlets—pendent from one and resting upon the other—and secured to each by strawberry vines and spider silk.

On June 10 Mr. Banks was sauntering past the cedar and quite accidentally brushed the branches aside, disclosing an incomplete nest, and he observed on a bush near by a bird whose appearance was unfamiliar, apparently not much disturbed, but evidently interested in Bank's presence. At that time the daylight was too far gone to admit of any accurate account being taken of the form or color of the bird, but sufficient was noted to identify it afterwards as a female Cape May Warbler. And here I may add that though the nest was frequently visited during the following week, the male was not seen, nor was the song heard.

On June 13 the nest was completed and two eggs were laid. During this visit the female was near at hand, and when Banks and a comrade withdrew to the shade of an adjoining tree she followed them and gave ample opportunity for a close and satisfactory examination—coming within a couple of yards and coolly pluming the feathers of wings and tail, all the time keeping her eye upon the intruders, but exhibiting no alarm nor uttering a single note.

On June 16 the hen was discovered on the nest and was driven off. She did not fly more than a few yards, and then perching on a bush plumed her feathers while watching her disturbers, occasionally uttering a faint chirping note. This note did not seem like a call, nor an alarm; nor did the bird appear at all excited.

To insure the identification being perfect the bird was secured before the nest was taken. This structure and the completed clutch of four eggs are before me as I write. The walls of the nest are composed of minute twigs of dried spruce, grasses, and strawberry vines, with spider's webbing interwoven with the coarser fabrics and knotted into numerous little balls, which are bound upon the surface as if for ornament. The exterior is rather roughly made, but is more compact, and bears evidence of more art than is shown in the nest of the Magnolia Warbler, which it somewhat resembles. The interior, however, is much more neatly and artistically formed in the Cape May's than in its congener's.

The lining is composed entirely of horsehair, and this is laid with precision, and shaped into a prettily formed cup, the brim being turned with exquisite grace. The dimensions of the nest are, outside, $2\frac{1}{4}$ inches high and $2\frac{3}{4}$ to 3 inches across the mouth; inside, $1\frac{1}{4}$ inches deep and $1\frac{3}{4}$ inches wide.

The eggs are of much the same dull white ground-color, of a slightly ashen hue, as that of the Magnolia's. The form of the egg is different, however, the Cape May's being less pyriform—the point less acute. The markings are of light and dark lilac, and yellowish and reddish tints of brown; the brown being on the surface and the lilac underneath, the coatings of shell producing the various shades. As a rule the spots are circular and very small—many being quite minute—and are irregularly distributed, no two eggs bearing the same pattern, though in all four there is decided tendency to concentration in a ring near the large end; but on some there are spots over the larger part of the entire shell, while the small end of others is immaculate. The measurements are .69 × .49, .65 × .49, .66 × .49, .66 × .48.

BIRD NOTES FROM LONG ISLAND, N. Y.

BY WILLIAM DUTCHER.

1. **Passerculus princeps** *Maynard.* IPSWICH SPARROW.—Wishing to ascertain whether this species is as rare as it has been generally supposed to be, or was overlooked from the inaccessibility of its winter habitat, I arranged with two of my correspondents to send me all the individuals of this species that they could secure. Both of them spend the winter months on the beach, one at Fire Island Inlet and the other at Shinnecock Bay, which is some forty miles further east. That they might be perfectly familiar with these birds, I sent them early in the autumn a skin of one as a sample. December 29, 1883, I received from my Fire Island correspondent twenty-nine specimens which he shot between December 17 and 29. He informed me that he had looked carefully but unsuccessfully for them until December 17, when he found six and secured them all. Subsequent to that time and prior to the 29th he secured twenty-three additional specimens. He also added that he usually observed them in pairs, although sometimes there would be three or four together. They were always found feeding on the seeds of tall grasses and weeds that

were above the snow level. January 30 he wrote, "I have not seen any Sparrows lately." My Shinnecock Bay correspondent did not succeed in getting any specimens until February 4, 1884, when he sent me four, and also stated, "these birds are very scarce." February 27, 1884, he succeeded in securing two additional specimens, which he sent to me, and again directed my attention to their scarcity. February 22, 1884, I hunted carefully for this Sparrow on Rockaway Beach, but unsuccessfully. I am quite positive, however, that I saw three or four individuals, but they were so wild I could not secure them. March 7, 1884, my correspondent at Fire Island wrote that he had seen but one Sparrow since the first cold spell when he sent me twenty-nine, and that he was at a loss to know whether he had killed them all or whether they had gone away. Of the thirty-five specimens received five measured 6.75 inches in length, and only two were under 6.15 inches. The largest and smallest birds measured respectively:

Length, 6.75; extent, 10.50; wing, 3.20.
" 6.10; " 9.25; " 2.65.

The average of the thirty-five specimens was: length, 6.49; extent, 10.02; wing, 3.03.

2. **Nyctea scandiaca** (*Linn.*) *Newt.* SNOWY OWL.—The entire absence from Long Island during the winter of 1883 and '84 of this Owl is noteworthy. During the winter of 1882 and '83 it was, on the other hand, remarkably plenty. None of my correspondents, about thirty in number, record a single individual seen. These Owls, being so much sought after for ornamental purposes, are watched for very closely by the professional gunners, and thus rarely escape being at least noted if they are not secured.

3. **Ægialites melodus** (*Ord*) *Bp.* PIPING PLOVER.—March 24, 1884, Mr. Newbold T. Lawrence, while at Shinnecock Bay, saw one of these Plovers which had been shot that day by a sportsman stopping at Capt. Lane's. Noted as an early date.

4. **Macrorhamphus griseus scolopaceus** (*Say*) *Coues.* RED-BELLIED SNIPE.—July 23, 1884, while shooting at Shinnecock Bay, three individuals of this species came to my stools at the same time, two of which were secured. I sent them to Dr. A. K. Fisher of Sing Sing, N. Y., with particulars of their capture. He wrote me as follows: "I should consider No. 55 a fair example of *M. griseus scolopaceus.* No. 56 is one of those, doubtful; just on the line; but if the note was different it might be considered the mate of No. 55, as they were male and female." The bill of the larger specimen measured 2.83 inches and of the smaller 2.38 inches.

5. **Larus glaucus** *Brünn.* GLAUCOUS GULL; BURGOMASTER.—March 11, 1884, I purchased one of a pair of Gulls of this species, which had been shot by a gunner at South Oyster Bay. The specimen I bought is in very nearly the same plumage as the one recorded by Dr. E. A. Mearns in the 'Bulletin of the Nuttall Ornithological Club,' Vol. V, p. 189. The other one is a younger bird.

6. **Sterna anglica** *Montag.* GULL-BILLED TERN.—I shot a female in full plumage July 8, 1884, at Shinnecock Bay, while watching for Limicolæ. There were five in the flock, it being without doubt a family of two adults and their brood of the present year. They were migrating westward along the coast and must have bred further east than Long Island.

7. **Utamania torda** (*Linn.*) *Leach.* RAZOR-BILLED AUK.—January 15, 1884, I received from a correspondent at Southampton, a specimen of this species accompanied by the following note: "The bird I send you was found dead on the seashore. It is likely it was drowned in the heavy surf we had just before. It was a new bird to me." February 2, 1884, I received another from a correspondent at Smith's Point, which was also found dead on the beach. February 6, 1884, I received still another from Southampton, not, however, from the same correspondent who sent me the one January 15. With it came the following interesting note: "I found this bird on the beach last night while on my patrol, and as it was a stranger to this coast I send it. I have been in the Life-Saving Service nine years and have never seen one before." All three birds were remarkable for the poor condition they were in, and also for the total absence of food of any kind in their stomachs.

8. **Lomvia arra bruennichi** (*Sch.*) *Ridgw.* BRÜNNICH'S GUILLEMOT.—Between January 8 and March 24, 1884, I obtained twelve specimens and noted about thirty additional individuals of this species from the south side of Long Island. A large majority of the specimens obtained were either found dead on the beach, generally frozen, or else so weak from hunger that they were easily captured by hand and died within a few hours. The only exception to the above was two that were shot by a gunner at Rockaway, who had them come to his Duck decoys. Dr. C. Hart Merriam mentions the same circumstance of starvation in connection with the Foolish Guillemot in his 'List of Birds ascertained to occur within ten miles from Point de Monts, Province of Quebec, Canada.'* "They were all in very poor flesh, some being little more than animated skeletons, and a great many died and were washed ashore."

The notes accompanying the specimens indicate that this species is a very uncommon winter visitor to the western end of Long Island, and an irregular winter visitor to the extreme eastern portion of the Island. From a correspondent at Ditch Plain, which is very near the eastern extremity of the Island, I get the following note: "The bird sent was picked up dead on the beach after an easterly storm. At such times we have quite often found them, and have also seen them alive. I think they are driven on our shore by severe northeast gales, as after such storms is about the only time we find them." Another correspondent, from Shinnecock Bay, which is about thirty miles west of Ditch Plain, writes: "They are rather a rare bird on this coast, but during the winter in severe storms you will see one occasionally." A correspondent from Smith's Point, which is about midway between New York City and Mon-

* Bulletin of the Nuttall Ornithological Club, Vol. VII, p. 242.

tauk Point, says, "Do not see them every winter. They appear to be a very dumb bird. I picked this one up on the beach alive, and was going to send it to you that way, but it died before I could do so. The Captain of our Station says 'to the best of his knowledge he has never seen one before.' He has been in the Life-Saving Service twelve years." At South Oyster Bay and Rockaway, which are but a few miles from the western end of the Island, the gunners and Life-Saving men had never seen them before, and at the former place the single one shot was considered so rare that it was preserved and mounted.

FIELD NOTES FROM PICTOU COUNTY, NOVA SCOTIA.

BY JAMES MCKINLAY.

SHORTLY after the commencement of the present century the Pictou Academy was founded, and its first superintendent was Dr. Thomas McCulloch, a gentleman of high literary attainments, who numbered among his friends the illustrious Audubon. With a view to promote the various branches of scientific research he early directed his attention to the establishment of a museum in connection with the Academy, intending among other objects to gather there a complete representation of the zoölogy of the Province of Nova Scotia, especially that of the eastern portion, at that time called the District of Pictou. So energetically was the scheme prosecuted that little more than a quarter of a century had elapsed ere the enterprise had attained a high degree of excellence, and the collection was pronounced by Audubon, who visited it, to be surpassed by none other, at that time, in America. Unhappily, however, that valuable collection was suffered to pass entirely out of our Province, which is the more to be regretted as many of the species represented have since become extinct or extremely rare to our fauna.

This applies to the mammals as well as to the birds, but the change is most marked numerically in certain aquatic species of the feathered race, for instead of the vast multitudes which in former days were wont to visit our bays and harbors in early spring and in autumn, now we meet but a few small and scat-

tered flocks. Their remarkable declension may be mainly attributable to over-much annoyance and disturbance by the increased traffic of vessels, and perhaps more especially by the unrestrained and incessant use of firearms by an increasing class of gunners, whose aim is to destroy fowl of every description irrespective of the season, merely to gratify an ungovernable propensity for destruction, and without heed of the consideration that such practices must result in the annihilation of entire tribes.

Among the ranks of the graminivorous and insectivorous species of birds the numbers that annually visit this locality appear much the same as they were half a century ago. These are rarely found within the deeper forests, but spread over the more open country bordering on the settlements, some species taking up their abode in our gardens and byways.

The numbers of the Ruffed Grouse have been seriously diminished, but I notice that in those districts where they are most harrassed they have become exceedingly wary and cunning. I have also observed that among these birds the size of the brood has decreased, for instead of clutches of nine, ten, or a dozen, I now rarely find one-half that number.

The Eskimos assert that during the period of incubation the Ptarmigan cease to give off any scent by which they can be traced; and my experience leads me to think that our Ruffed Grouse possess the same peculiarity, else how could they so universally escape alike from furred and feathered foes, as they certainly do at this season.

The several species of the 'noble order' of birds are not so numerously represented here as formerly, influenced, I think, to a very great extent, by the destruction of our forests by fire and other causes.

Perhaps no bird is more regretfully recalled by our older sportsmen than is the Wild Pigeon. The first inhabitants of this Province found this elegant and savory member of the Columbidæ abundant everywhere.

Their spring arrival usually occurred early in the month of May, and the bulk seldom made their autumnal exit until the middle of October. They constructed their simple nests in the branches of lofty trees, especially hemlocks, beneath whose foliage they found a grateful shade from the midday sun, and from which they seldom issued except at early dawn or at evening. In olden

times their food was very abundant, and consisted chiefly of strawberries, raspberries, and blueberries, which now-a-days are, unaccountably, found only in very meagre quantities, quite too limited to supply the vast flocks of Pigeons which formerly resorted here. This failure in their provisions appears to me the best reason to give for their withdrawal from this section, and is the same reason given by Audubon for their leaving some more southern localities.

I can not so readily account for the marked decrease in the numbers of Plovers visiting us. These swift and graceful fliers usually made their first appearance about the end of August, or much earlier in seasons that were wet and stormy, with prevailing northerly gales. The major part, however, usually delayed until the first week in September.

Contemporary with these heavier flocks, composed entirely of the Black-bellied species, came the Eskimo Curlews, which sometimes intermingled with their smaller congeners. The Golden Plover was usually the last of the Charadriidæ to depart, staying until the latter end of October. This species was never so numerous here as was the Black-bellied, but both are rarely met with here now. The Long-billed Curlew has forsaken our shore entirely, save a few stray birds which drop in upon us about the first of September, or a small flock is started in some remote and sequestered beach. They rarely venture upon the uplands, as I can remember them doing years ago. None of the family ever visit us in the spring now-a-days; it is only in their autumnal migrations that they favor us with a visit, and even now flocks are seen passing over the country high in the air and steering due south. I can remember when Wilson's Snipe came here in immense flocks, but about a quarter of a century ago they began to lessen in numbers, and now they are far from common. Woodcock on the other hand, are more plentiful now than they were fifty years ago. When Pictou County was first settled none were found here, and in 1830 the first specimen was placed in the museum of the Academy. From this date they increased rapidly until about fifteen years ago, when their numbers appeared to decrease, from what cause I can only conjecture. Almost every season a few of this species are met with here in March, when the earth's surface is frozen and covered deep with snow, excepting in a few favored spots. These spots are, however, spied out by these

hungry birds, and they may be seen here diligently probing for a dinner.

Pictou, owing to its geographical position, lies within the line of bird migration, and is annually visited by many of the aquatic species.

The earliest to arrive here during the vernal migration is the Canada Goose, and even if the weather has been stormy the advance guard usually put in an appearance during the first week in March, followed by a large flock some ten days later. Should southerly winds prevail, other large flocks appear, moving at a much greater altitude than did the first comers. About the 8th or 10th of April the bulk have reached here. From this point northward their movements seem to be much influenced by the weather, and often after leaving here and encountering ice and head winds they have returned. About the 20th of April the main portion are usually away, though a few stragglers are met as late as the middle of May. Those which tarry longest with us often pair before proceeding northward.

In the autumn, should the temperature suddenly lower and cold north winds prevail, the first comers—small parties, mainly young birds—are seen as early as the first week in September, and their appearance is considered a sign of an early winter, though this does not always prove correct. The largest flights pass us from the first to the middle of October. A large number generally withdraw to some favorite feeding ground in a well screened cove, and feasting on nutritious sub-marine plants, reach the extraordinary weight of eighteen pounds. Many of these stay until the waters are on the point of freezing, and occasionally some which have tarried for the last possible mouthful have been seen as late as Christmas, hurrying southward at a great height.

The Brants arrive here in the spring, later than the Geese, and remain a month longer. On their first arrival they are in very poor condition and do not appear to recruit much before the middle of May, after which their obesity increases perceptibly, and by the first of June they attain their highest state of edible perfection.

For a few days previous to their starting northward they visit the seashore and sand-beaches where they can obtain small quartz pebbles, locally termed 'ballast,' and then, congregating at one central rendezvous, they await for a southerly breeze, when,

the entire body rising together, after a few circuits in the air, they fly directly north. Their customary time to leave us in the spring is exceedingly precise, rarely varying more than from the 9th to the 12th of June.

The Eider Ducks, called by our gunners 'Sea Ducks,' visit us in the autumn in immense throngs. Flying close to the water in horizontal lines, they pass along our shore early in November, and continue on through the Straits of Canso and along the eastern shore of Nova Scotia to the mouth of the Bay of Fundy. Occasionally, however, a flock with more sagacity has been seen to mount into the air and fly across the land to the head waters of the Bay. None of this species have been observed on our coast during the spring months, when their line of flight is said to be along the north-eastern shore of Cape Breton and to the Straits of Belle Isle. In all the throngs of this species that pass us no adult males are ever seen.

Occasionally birds have been met with in this vicinity that have evidently been driven off their usual haunts. For instance, some twenty years ago considerable numbers of Scarlet Tanagers were found here about the 10th of May. Some were dead, and all were in an emaciated condition. None have been seen here since.

About the same year the Glossy Ibises were seen on the margin of a small lake near here, and one was captured by a countryman.

ANALECTA ORNITHOLOGICA.

Fourth Series.

BY LEONHARD STEJNEGER.

XVII. On the Origin of the Word *Quiscalus*.

The words *Quiscalus* of Vieillot and *quiscula* of Linnæus* seem to have perplexed 'ornithophilologists' considerably, and

* Both combined in the terms *Quiscalus quiscula* (Lin.), *Quiscalus quiscula aglæus* (Baird), and *Quiscalus quiscula æneus* (Ridgw.) for the Purple Grackles (Ridgw., Nomencl., Nos. 278, 278 *a*, and 278 *b*).

Professor Newton says that he has not been able to trace the latter further back than to Linnæus's 10th edition (*cf.* Coues's second Check-list, p. 64, where he enlarges upon the subject). The word *Quiscula* is, however, to be found as early as the middle of the 16th century, for Gesner gives among the names of the Quail (*Coturnix coturnix*) "*Qualea & Quiscula Recentioribus*," and Pater Rzaczynski in his 'Historia Naturalis curiosa Regni Poloniæ,' etc. (1721, p. 376), names it "*Coturnix seu Quiscula, Quisquila.*" The word is probably an onomatopoieticon, and the different names Quail, Quatla, Quaglia, Caille, Cuaderviz, Quackel have perhaps a kindred origin. I also find quoted as late Latin "*quaquila, quaquilia, qualia* and *qualea*," while '*calha*' and '*quisquila*' are given as Portugese vernaculars of the Quail; and Ph. Statius Müller (S. N., II, 1773, p. 196) says: "Der Linnæische Name *Quiscula* Könnte eine Wachtel bedeuten." The Mexican origin, as suggested by some (*cf.* Auk, 1884, p. 57), seems not probable in view of the above.*

XVIII. *Colinus*, NOT *Ortyx*.

Good taste and common sense should have prevented a not unfrequent usage among older writers of adopting a classic Greek or Latin name of a well-known European species as generic term for an exotic or even Neogæan group of birds. That the early immigrants from 'the old country' transferred the names of familiar birds to the species of similar appearance in their new home, was natural and cannot be blamed; that they called the 'Bob-white' Quail is just as natural as the course of Stephens in imposing upon the exclusively American genus the classic name *Ortyx* is condemnable; for ορτυξ is the ancient Greek name for the common European Quail (*Coturnix coturnix*).

Still, this consideration would not affect the availability of the name as a generic appellation, and when we now propose to give it up it is because we are compelled to do so for other reasons. The fact is that *Ortyx* is preoccupied.

As I have no means of looking up the reference "*Ortyx* Oken, Lehrb. Naturg., VI, 1816, p. 611," which I suppose is used by

* It should also be mentioned that *Quiscalus* is used in botany, for which reason Swainson substituted *Scaphidurus*.

him *in lieu* of *Coturnix*,* I shall only call attention to *Ortygis* Illiger, 1811. Bestowing this name upon the genus best known as *Turnix* he evidently transliterated the Greek ορτυξ, which he quotes in parenthesis after the Latin appellation. There are other Latin transcriptions of the same name, *Ortygia* and *Ortyga*, and the reason why Illiger did not select the strict transliteration *Ortyx* was probably that in ancient Latin the latter is only used for a plant.

Ortygis and *Ortyx* are identical in meaning and derivation, only differing in their grammatical ending, and consequently the latter will have to give way.

The next name for the genus is Lesson's *Colinus* (Nuttall's *Colinia* was given four years later without knowledge of Lesson's name), derived from the vernacular French name Colin "contracted by Buffon from the barbarous appellation of some Mexican species," for instance Acolin, Cacacolin, Ocacolin, etc.

The synonymy of the genus stands as follows:

Genus **Colinus** *Lesson.*

1819.—*Ortyx* STEPHENS, Gen. Zool. XI, p. 376 (type *O. borealis* = *virginianus* LINN.) (nec *Ortyx* OKEN 1816, nec *Ortygis* ILLIG. 1811).

1826.—*Ortygia* BOIE, Isis, 1826, p. 977 (same type).

1828.—*Colinus* LESSON, Man. d'Orn. II, p. 190 (same type).

1832.—*Colinia* NUTTALL, Man. Orn. Landb. p. 646 (same type).

1854.—*Philortix* DES MURS (nec GOULD 1845).

The names of the North American species are therefore:

480.† **Colinus virginianus** (*Linn.*). BOB-WHITE.

480 *a*. **Colinus virginianus floridanus** (*Coues*). FLORIDA QUAIL.

480 *b*. **Colinus virginianus texanus** (*Lawr.*). TEXAN QUAIL.

480.$_1$ **Colinus graysoni** (*Lawr.*). GRAYSON'S QUAIL.

Any one having the opportunity of ascertaining the true nature of the above quotation would confer a favor upon the author by publishing a brief statement of it in the next number of 'The Auk.'—Since the above was written Mr. Allen has been kind enough to look the matter up, and has communicated to the author an extract from Oken's work, from which it is evident that he used *Ortyx* instead of *Turnix*, and not, as I supposed, for *Coturnix*. It is only necessary to quote the following: "I. Gattung. *Ortyx*, *Turnix*, *Tridactylus*, Queil; Hühnerschn. mässig, schmächtig, Nasl. in Mitte, Kopf befiedert," etc. Oken simply 'emended' Illiger's *Ortygis*.

† Ridgway's 'Nomenclature,' 1881.

XIX. Is the Name *Ortyx massena* tenable?

In the synonymies of the species known as the 'Massena Quail' the earliest name is quoted as "*Ortyx massena* Less., Cent. Zool., 1830, 189," this name taking the preference over "*Ortyx montezumæ* Vig., Zool. Journ. V, 1830, 275."

In turning to Lesson's work, quoted above, we find first that *Ortyx massena* is a mere *nomen nudum*. The following is all that is said about it: "Ce colin [*O. elegans* Less.] provient de la Californie, ainsi qu'une autre belle et nouvelle espèce, que nous avons nommée *ortyx Massena*, et qui se trouve dans la collection de M. le duc de Rivoli. Les *ortyx elegans* et *Massena* sont très-distincts des *ortyx picta* et *ortyx Douglasii*, décrits dans le tome 16 (pag. 243) des Transactions de la société Linnéenne de Londres." The name does not occur in the same author's 'Traité' published in 1831.

But, even apart from the unavailability of Lesson's name because unaccompanied by a diagnosis, description, or figure, there seems to be little doubt that *Ortyx montezumæ* has the priority. The title-page of Lesson's 'Centurie Zoologique' certainly bears the date 1830, and the dedication to M. Geoffroy-Saint-Hilaire is dated, "Janvier 1830." The work seems to have been issued in parts, the title-page and the dedication having been annexed to the first part, which may have been published in 1830, for the title on the paper-cover has the year 1832, and the 'Post-Scriptum' on p. 229 is written in "Février 1831." The article from which the above quotation is taken pretends to be *written* in June 1830, according to a remark at the bottom of the page, but on the same signature and four pages earlier is an article written in November of the same year, so that it is safe to presume that the part containing the name *ortyx Massena* was not printed and *published* before 1831.

Therefore, the Massena Quail, or, perhaps better, the Massena Colin, should stand as

485. **Cyrtonyx montezumæ** (*Vig.*).

XX. *Cyanolesbia*, 'strictly correct'!

The Trochiline genus *Cynanthus*, as at present accepted by 'plurimis auctoribus,' offers a curious transposition of types, not

less remarkable for the fact that the transposition has been generally admitted.

In his 'Synopsis of the Humming-birds' Mr. Elliot remarks in a footnote (p. 150): "This genus was first established by Swainson in 1827, Zool. Journ., p. 357, and contained species belonging to various genera, all of which he called types. In 1837 (Cl. B., II, p. 330), he ejected the species from CYNANTHUS, which he had previously placed in it, and inserted *T. forficatus*, Linn., only, which now stands as *the* type of the genus." From this quotation it is evident that a species has been selected for type which was not originally included in the genus when established, and that none of the species first placed therein—one of which, of course, must be the type—was admitted into the *new* genus *Cynanthus* of 1837. Whatever may be Swainson's *Cynanthus* of 1827, certain it is that it is not the genus of which *Trochilus forficatus* Linn. is the type.

As no other already proposed name seems to be available for that group I have called it

Cyanolesbia,

derived from *cyaneus* and *lesbia*, on account of the blue reflections on the tail, and the near relationship to the typical species of the genus *Lesbia*, which have the metallic gloss on the tail greenish.

It includes *Cyanolesbia forficata* (Linn.), the type, and *Cyanolesbia smaragdina* (Gould) (= *C. mocoa*).

XXI. CONCERNING THE NAMES OF SOME NORTH AMERICAN SPIZINÆ.

A few more of the names of the North American Spizinæ require a revision, as will be apparent from the following remarks.

As *Spermophila* Swains., 1827, is preoccupied by *Spermophilus* Fleming, 1822, we will have to adopt Cabanis's *Sporophila*,* and our species will stand as

R. 252. **Sporophila morelleti** (*Puch.*) *Cab.*

Professor Cabanis has persistently used the generic term "*Euethia* Reichenb. 1850" in preference to the commonly adopted

* Deriv. σπόρος, seed, and φιλέω, I love.

"*Phonipara* Bonap. 1850," and a close examination shows that he is right in using the former. Although based upon different types, the two names apply strictly to the same genus, and Reichenbach's *Euetheia* has a slight priority of nearly two months over *Phonipara*.

The synonymy of the genus stands thus:

Genus **Euetheia*** *Reichenb.*

Euetheia REICHENBACH, Av. Syst. Nat., Knacker, pl. lxxix "June 1, 1850" (type *E. lepida* LINN.).

Phonipara BONAPARTE, Consp. Av. I, p. 494, "July 30, 1850" (type *Loxia canora* GM.).

Euethia CABANIS, Mus. Hein. I, 1851, p. 146 (emend.).

The species entering the North American Fauna must be called

R. 253. **Euetheia bicolor** (*Linn.*) *Gundl.*

and not *Euetheia zena* (Linn.). Linnæus, in the tenth edition, described two different species under the very same name *Fringilla zena*,† our bird being the last one of the two. It will therefore have to give way for *F. bicolor*, a name substituted by Linnæus himself when becoming aware of his carelessness. I quote the following from the synonymy of the species:

1758.—*Fringilla zena* LINN., S. N. 10 ed. I, p. 183 (*nec op. cj. p.* 181 *quæ Spindalis zena*).

1766.—*Fringilla bicolor* LINN., S. N. 12 ed. I, p. 324.

1874.—*Euethia bicolor* GUNDLACH, Journ. f. Orn. XXII, p. 312.

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* Deriv. **εὐηθεια, ῆ**, simplicity. It is not to be confounded with *Eutheia*, 1830, applied to a coleopterous insect by Stephens, and derived from **εὐθύς, εῖα, ύ**, meaning *straight.*

† Zena, if a Greek word, may have been intended for Xena, **ξένη**, a (female) guest or stranger, a not infrequent corrupt transliteration, *e. g.*, *Zenia* Gray, *Zenopeltis* Boie, *Zenophasia* Sw., *Zanthomyza* Sw., *Zenitis* Boisd., *Ziphius* Cuv., *Ziphorhynchus* Sw., *Ziphotheca* Val. & Cuv., *Zyphothyca* Sw. for *Xenia*, *Xenopeltis*, *Xenophasia*, etc. Against this is the fact that Linnæus in both instances wrote *Zena* with the initial letter capitalized. **Ζῆνα** is the objective case of **Ζευς**, Zeus, Jupiter. I find that Pater Rzaczynski (p. 370, *vide antea*), among other names, quotes '*Zena Belonii*' for the European Goldfinch (*Carduelis carduelis*), and also that the same bird was styled '*Fringilla Jovis*,' *i. e.*, Jupiter's Finch, by Klein (Hist. Avium Prodr. 1750, p. 97). *Cf.* Coues, 2d Check List, p. 59.

It will be seen that the name applied by Townsend to the Lark Bunting, viz., *Fringilla bicolor*, was already disposed of by Linnæus, and is thus unavailable for any other bird. As there seems to be no synonyms, a new name will be required, for which I propose

R. 256. **Calamospiza melanocorys.*** LARK BUNTING.

XXII. THE CORRECT NAME OF THE AMERICAN COWBIRD.

In 'The Ibis' for 1883, p. 583, Dr. Sclater has a note headed as above, in which he concludes that it should remain *pecoris* and not be changed to *ater* as proposed originally by Gray and, later on, by Coues, and adopted by Ridgway. The following are my reasons for not agreeing with him.

Pl. Enlum. 534 is identified and named by Boddaert (Tabl. Pl. Enl. p. 31) thus:

"534. Trupiale noir BUFF. V. p. 301. BRISS. II. p. 103. *Oriolus niger* mihi LINN. *Gen.* 52.0."

On p. 37 he identifies Pl. 606, fig. 1 (which represents the bird in question) thus:

"606. 1. Petit Troupiale noir, BUFF. V. p. 303. BRISS. *Ornith.* II. p. 103. pl. XI. LINN. *Gen.* 52.0. *Oriolus ater*, black oriole LATH. *birds* I. p. 445. n. 37."

Now, Dr. Sclater reasons thus (*l. c.*): "On reference to Boddaert's Table, p. 37, it will be observed that he does not propose to give a *new name*, '*Oriolus ater*,' to Daubenton's '*Troupiale de la Caroline*' (Pl. Enl. 606. fig. 1), but merely quotes (as a synonym of Daubenton's figure) '*Oriolus ater*, Black Oriole, Lath. Birds, i. p. 445. n. 337.' But the synonym is incorrect, for Latham's 'Black Oriole' is quite another bird. Moreover, when Boddaert intends to make an original name he usually adds after it the word 'mihi.'"

We now turn to Latham, and find nowhere the name '*Oriolus ater*.' It is therefore clear that Boddaert does not quote "*Oriolus ater*, Black Oriole, Lath.," etc., as a synonym, but simply the latter part of it, imposing the name *Oriolus ater* upon the bird represented on the plate, and not named systematically either by Buffon, Brisson, or Linnæus. That he adduces Latham's 'Black Oriole' wrongly as a synomyn does not invalidate the name which

* Deriv. **μέλας** genit. **μέλανος**, black, and **κόρυδος**, contr. **κόρυς**, a Lark.

is based upon the plate 606. It seems, moreover, evident, that his quotation of Latham's 'Black Oriole' is not due to a misidentification of Latham's description, but rather to a lapsus of the pen, for under the 'Black Oriole' Latham quotes Pl. Enlum. 534, the same figure which Boddaert a few pages earlier (p. 31, see above) named *Oriolus niger*, while again Latham quotes Pl. Enl. 606, f. 1. under the 'Lesser Black Oriole,' the bird in question, to which Boddaert, therefore, most probably intended to refer.

That '*Oriolus ater*' lacks the appendix *mihi* is totally insignificant. A few examples, picked up at random, are sufficient to show that: *Hirundo albiventer* (pl. enl. 564. 2, Bodd. p. 32), *Muscicapa fusca* (574, 1, p. 34), *Muscicapa eques* (831, 1, p. 51), *Tringa miles* (835, p. 51), *Formicarius cayanensis* (821, p. 50), *Motacilla naevia* (752, 1, p. 47), *Motacilla eques* (730, p. 46), *Tanagra nigricula* et *T. pileata* (720, 1 and 2, p. 45), *Tanagra grisea* (714, 1, p. 45), *Tanagra rufa* (711, p. 45), *Parus cinctus* (708, p. 44), etc. The last seven are particularly interesting as compared with the name given to the bird on plate 712. The latter is based upon exactly the same authorities and in precisely the same manner as the above, to which '*mihi*' is not appended, and still the species figured on pl. 712 is called "Alauda capensis *mihi*."*

Somebody might perhaps object, that '*Oriolus ater*' belongs as a quotation to 'black oriole' (see Boddaert's text as quoted above) because only separated from it by a comma. In reply I shall only refer to Bodd., p. 44, and the following quotation to prove that the comma is of no account:

"704. 2. Figuier Protonotaire, BUFF. IX. p. 465. BRISS. *Ornith.* III. o. *Motacilla citrea*, LINN. *Gen.* 114. o."

On the same page are two examples, 701, 2, and 706, 1.

There is, therefore, in my mind no doubt but what Dr. Coues was perfectly justified in proposing the change from *Molothrus pecoris* to *Molothorus ater* for the American Cowbird.

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* Numerous similar examples might be quoted, as pl. 700. 1 and 2, compared with 701, 2, 702, 703, 1 and 2; 706. 1 compared with the same pl. fig. 2, all these on p. 44. In many of these cases the absence of '*mihi*' is very notable, as both the generic and the specific names were new and given by Boddaert.

XXIII. REMARKS ON THE GENERIC NAME *Sayornis* AND ON *Sayornis phœbe.*

Sayornis, as composed of the name Say and *ornis*, may be either masculine or feminine, for we find both ὁ ὄρνις and ἡ ὄρνις. It might perhaps be urged that the addition of Thomas Say's name makes the gender masculine, but holding that the author who first indicated the gender is entitled to settle the question, I contend that *Sayornis* is feminine. Bonaparte, when establishing the name (Coll. Delattre, 1854, p. 87; I can find no other or earlier reference) gave no clue, as he combined it with the specific name *nigricans*, but Sclater who next adopted the term, in 1855, indicated his preference by writing *Sayornis ardosiaca* (P. Z. S., 1855, p. 149), and has consistently followed this course in all his later writings.

As to the specific names of the North American species, I have to remark that Gmelin's name *Muscicapa fusca* cannot stand for the Pewee, as not less than two other authors, independent of each other, had disposed of that name for two other birds previous to 1788. Nor can the same author's *Muscicapa atra* be employed, for a similar reason, as is apparent from the subjoined synonymy. The next name in order seems to be Latham's *M. phœbe*, which will give us the name *Sayornis phœbe*, a very fortunate change, when change must be made!

The synonomy will stand thus:

R. 315. **Sayornis phœbe** (*Lath.*). PHŒBE; PEWEE.

Muscicapa carolinensis fusca, BRISSON, Orn. II, p. 367 (1760).
Dusky Flycatcher, PENNANT, Arct. Zool. II, p. 389 (1785).
1788.—*Muscicapa fusca* GMELIN, S. N. I, p. 931 (based on BRISS. l.c.; nec MÜLLER, 1776, quæ Pl. Enl. 568 fig. 2; nec BODDAERT, 1783, quæ Pl. Enl. 574 fig. 1).
1788.—*Muscicapa atra* GMELIN, S. N. I, p. 946 (based on PENNANT, l. c.; nec MÜLLER, 1776, quæ Pl. Enl. 572 fig. 3).
1790.—*Muscicapa phœbe* LATHAM, Ind. Orn. II, p. 489 (based on PENNANT, l. c.).
1810.—*Muscicapa nunciola* WILSON, Am. Orn. II (p. 78, pl. xiii, fig. 4.).

XXIV. ON THE PROPER GENERIC NAME OF THE PILEATED WOODPECKER AND ALLIES.

The generic name *Hylotomus* for the Pileated Woodpecker cannot stand, because preoccupied by *Hylotoma* Latreille

(given to an hymenopterous insect in 1804). Cabanis was aware of the fact and changed the name in 1862 to *Ceophloeus*, in which genus he placed *lineatus*, *scapularis*, *erythrops*, and *pileatus*, with the first mentioned as 'typus generis.' The following year, however, he separated *pileatus* from the others, bestowing upon it the name *Phloeotomus*. As Mr. Ridgway has convinced me, *pileatus* and *lineatus* are strictly congeneric, and, consequently, the generic appellation of the latter applies as well to the former.

GENUS **Ceophloeus*** *Cab.*

<1831.—*Dryotomus* SWAINSON, Faun. Bor. Am. II, pp. 303 & 104 (type *P. martius*).
<1849.—*Dryopicos* MALHERBE, Mém. Acad. Metz, 1849, p. 320 (same type).
<1850.— *Dryopicus* MALHERBE, Classif. Picin. Sept. 1850 (same type).
×1854.—*Driopicus* BONAPARTE, Consp. Zyg. Estr. At. Ital., No. 8, May 1854, p. 8 (type *pileatus*).
=1858.—*Hylatomus* BAIRD, B. N. Am. p. 107 (type *pileatus*).
=1862.—*Hylotomus* CABANIS, Journ. f. Orn, 1862, p. 176 (emend.).
=1862.—*Ceophloeus* CABANIS, Journ. f. Orn. 1862, p. 176 (type *lineatus*).
>1863.—*Phloeotomus* CABANIS, Mus. Hein. IV. p. 102 (type *pileatus*).

At first sight it might seem as if Malherbe's *Dryopicos* would be available, but a closer investigation shows that this author only emended Boie's *Dryobates* and Swainson's *Dryotomus* to suit his new nomenclature, in which all the four-toed Woodpeckers had names ending in '*picus*' or '*picos*'(!). The two generic names just referred to have expressly *martius* for type, and *Dryopicos* may therefore be considered as having the same type.

The North American species will stand as

R. 371. **Ceophloeus pileatus** (*Linn.*) *Cab.* PILEATED WOODPECKER,

the authorities being

1758.—*Picus pileatus* LINN., S. N. 10 ed. I. p. 113.
1862.—*C*[*eophloeus*] *pileatus* CABANIS, Journ. f. Orn. 1862, p. 176.

SMITHSONIAN INSTITUTION,
Washington, D.C., Dec. 1, 1884.

* Deriv. **κέω** = I split, **φλοιός** = bark.

PRELIMINARY REPORT OF THE COMMITTEE ON BIRD MIGRATION.

BY C. HART MERRIAM, M. D.

OWING to the large quantity of material in possession of the Committee on Bird Migration, the several superintendents, with two exceptions, have been unable to complete the reports for their respective Districts. Hence it is impossible, at this time, to do more than call attention to the extent of the work of the Committee, and to present a few brief examples of the results thus far attained. Any attempt, on the part of the Chairman, to generalize upon the as yet meagre amount of classified data at his command, would obviously be premature.

It is unnecessary to dwell upon the labor involved in the distribution of six thousand circulars, by which means the Committee has secured the co-operation, in addition to the keepers of lights, of nearly seven hundred observers, of which number twenty-five are women—and very excellent observers they make. These observers are distributed as follows: Mississippi Valley District, Prof. W. W. Cooke, Superintendent, 150; New England District, John H. Sage, Superintendent, 144; Atlantic District, Dr. A. K. Fisher, Superintendent, 128; Middle-Eastern District, Dr. J. M. Wheaton, Superintendent, 92; Quebec and Maritime Provinces, Montague Chamberlain, Superintendent, 56; District of Ontario, Thomas McIlwraith, Superintendent, 38; Pacific District, L. Belding, Superintendent, 40; Rocky Mountain District, Dr. Edgar A. Mearns, Superintendent, 15; Manitoba, Prof. W. W. Cooke, Superintendent, 10; British Columbia, John Fannin, Superintendent, 5; North-West Territories, Ernest E. T. Seton, Superintendent, 5; Newfoundland, James P. Howley, Superintendent (returns not yet received).

Through the courtesy of the Hon. Wm. Smith, Deputy Minister of Marine and Fisheries of Canada, and of Commander Henry F. Picking, U. S. N., Secretary of the Lighthouse Board of the United States, the Committee has secured the co-operation of these departments, which, it is hardly necessary to add, is indispensible to the success of the undertaking. The Department of Marine and the Lighthouse Board have distributed over one

thousand sets of blank schedules and circulars to the lighthouses, lightships, and beacons of the United States and British North America. Several hundred of these schedules have already been returned to the Committee, and almost every mail brings one or more. A large number of the heads and wings of birds which dash themselves against the lights have been sent to the Chairman for indentification. Among them is one of the rarest of North American birds — Swainson's Warbler (*Helonæa swainsoni*) — which was kindly forwarded by the keeper of the lighthouse at Sombrero Key. The schedules entitled "Birds striking the Light" contain data of an exceptionally valuable character, and throw much light on several problems not within reach of the ordinary observer.

The Committee has now established observation stations in every State in the Union, and in every Territory, excepting Nevada; and it is gratifying to know that returns have already been received from nearly one thousand observers. Comparatively few of these observers are ornithologists, or even bird collectors, the great bulk being intelligent farmers, tradesmen, and light-keepers. Those who know only the commonest birds, such as the Robin, Bluebird, or Chimney Swift, can contribute data of great value, and their services are eagerly sought.

The area over which the observation stations are scattered is co-extensive with the boundaries of the inhabited portions of the North American Continent. In the East, the southernmost station from which returns have been received is Sombrero Key, off Southern Florida (latitude 24° 37′); and the northernmost, Belle Isle, off Labrador (latitude 51° 53′). In the West, reports have come to hand from Arizona and Southern California, and from Point Barrow, the most northerly point of Arctic Alaska (latitude 71° 18′). The easternmost station from which data have been received is St. John's, Newfoundland (west longitude 52° 45′), projecting well into the Atlantic; while on the Pacific the Committee has observers at various points in California, Oregon, Washington, and British Columbia.

Hence it appears that the migration stations of the American Ornithologists' Union are sprinkled over 46° 41′ of latitude (approximately three thousand two hundred miles in a north and south direction), and 72° 15′ of longitude (approximately three thousand five hundred miles in an east and west direction). The

distance in a straight line between the most remote points (Sombrero Key and Point Barrow) is about four thousand three hundred miles.

The amount of material now on hand is so great that the Committee cannot hope to fully elaborate it without considerable pecuniary assistance. Reports on the Robin (*Merula migratoria*), Catbird (*Mimus carolinensis*), Martin (*Progne subis*), Baltimore Oriole (*Icterus galbula*), and Nighthawk (*Chordeiles popetue*), have already been prepared by the superintendents of the districts east of the Rocky Mountains, and were presented at the last Congress of the Union.

At the end of this article will be found a summary of the records of the Martin, together with Professor Cooke's report on the northward movement of the Baltimore Oriole in the Mississippi Valley.

Mr. John Murdoch, Superintendent of Alaska, has completed a very interesting report upon the times of arrival and departure of the species that visit Alaska, supplementing his personal observations (which will be found appended to the present paper) by the published records of previous explorers.

The most valuable report yet received is that of Mr. L. Belding, Superintendent of the Pacific District. It contains notes on no less than two hundred and eighty species, and is such an important contribution to the ornithology of our western coast that the Committee hopes to publish it in full at an early date.

Professor Cooke's report for the Mississippi Valley will soon be ready for printing, and contains a vast amount of useful information. In addition to the report proper, consisting of original notes on three hundred and eighty-three species (which fills about four hundred pages of foolscap), there is a supplemental annotated list of one hundred and twenty-six species which have been found in the Mississippi Valley, but which have not as yet fallen under the notice of the Committee's observers. The total of birds known to visit the Mississippi Valley is thus increased to the surprising number of five hundred and nine species. But this by no means concludes the report, for Professor Cooke also traces the 'bird-waves,' treats of the rate of speed at which certain species migrate, and gives a tabulated statement of the contemporaneous phenomena observed. Furthermore, the report will be accompanied by weather maps, prepared by the able

hand of Mr. Otto Widmann, with explanatory text by Professor Cooke.

The Mississippi Valley—a mighty river basin penetrating the heart of a great continent from a semi-tropical climate on the South well into the cold-temperate regions of the North, and unobstructed by mountain barriers or large bodies of water to deflect the current of bird life from the smooth channel through which it flows, yet sufficiently diversified to present a variety of minor physiographical conditions—affords peculiar facilities for the study of many phases of bird migration, and is well worthy of the labor bestowed upon it in this report.

The Chairman takes pleasure in announcing two additions to the personnel of the Committee. Mr. William Dutcher has been appointed Superintendent of Long Island, New York, in which district he has for several years been successfully at work. The readers of 'The Auk' are already familiar with some of the results of his investigations, but the greater portion is still unpublished.

Mr. Lyman S. Foster has been appointed Superintendent of the Lighthouse District of Spanish America, and has already brought together a large amount of valuable material. Mr. Foster began the collection of data from this source independently of the Committee. On the 25th of April, 1884, he mailed a circular-letter, inclosing return blanks, to the keepers of two hundred and fifty-five lighthouses in the West Indies, Central, and South America. The responses were so numerous and satisfactory that, on the 25th of July, he mailed a second letter, containing more detailed instructions, and accompanied by a little book, in the Spanish language, as a guide to the keepers in their ornithological investigations. A very voluminous polyglot correspondence followed, and is still progressing. It was ascertained that large numbers of birds are annually killed by striking the lighthouses on both coasts of South America and in the West Indies—particularly along the northern coast of Cuba. Florentina Alvares, keeper of the lighthouse at Paredon Grande, Cuba, picked up more than a hundred birds one morning. Pedro Maury reports that two hundred and seventy-eight birds killed themselves against the lighthouse near Cardenas during the night of October 4-5, 1884. Francisco Megide writes from Bahia de Cadiz, "one night an infinity of birds struck, and the

tower men utilized them for food." Francisco Bautista states that at San Antonia from five to six hundred birds have been picked up in a single morning.

From seven lighthouses upon the northern coast of Cuba Mr. Foster has received much confirmatory evidence of the fact, clearly pointed out by Professor Baird nearly twenty years ago, that in autumn an immense bird-wave reaches the Cuban shores from Florida—a movement which renders insignificant the migration from Florida westward along the northern coast of the Gulf of Mexico.*

MIGRATION OF THE MARTIN (*Progne subis*) IN THE SPRING OF 1884.

The common Purple Martin is an excellent species by which to trace migration, for it is well-known and widely distributed, and its habit of occupying boxes erected for its use in towns and villages renders its movements far easier of observation than in the case of forest-dwelling birds. In winter the Martin visits South America, but the last of the fall migrants rarely leave our southern border before December. Returning, the advance guard usually enters the Gulf States toward the latter part of February. During March the great army arrives and spreads over the whole of the Southern States, the van appearing in many parts of Virginia, Kentucky, Southern Illinois, Missouri, and Kansas, some enterprising individuals reaching even as far north as latitude 40°. If not retarded by cold, the first week of April finds them pushing swiftly northward, and by the end of the month they have distributed themselves over nearly the whole of the United States east of the Rocky Mountains, and are already common in some parts of Canada. The exact time of their appearance at any given locality in the Northern States varies as much as two weeks from year to year. During the spring of 1884 they were recorded from Water Valley, Miss., March 1; Gainesville, Texas, March 5; Caddo, Indian Territory, and Newport, Arkansas, March 9; St. Louis, Mo., March 24; Manhattan, Kansas, March 25; Southern Iowa, March 30. During April they move through Northern Illinois and parts of Wisconsin and Minnesota, arriving at latitude 45° about the end

* The full results of Mr. Foster's investigations, including notes on one hundred and fifty species, were presented before the Linnæan Society of New York, September 21, 1884.

of the month. May 19 they reached Portage la Prairie in Manitoba. East of the Mississippi Valley they were seen in Jessamine County, Kentucky, March 18; at Buffalo, West Virginia, March 22; Camden, Indiana, March 28; New Lexington, Pa., April 16; Columbus, Ohio, April 15; Niagara Falls, April 18; Auburn, New York, April 20; Belleville, Ontario, April 22; Ottawa, Canada, April 27. In New England the returns show them at Saybrook, Conn., April 19; Greenfield, Mass., April 27; Moosehead Lake, Maine, April 23. They were seen at St. John's, New Brunswick, May 2; Chatham, N. B. (Mirimichi Bay, facing the Gulf of St. Lawrence), May 10; and at Cape Breton Island, north of Nova Scotia, June 1.

Turning now to the other side of the Continent, their progress is found to have been much affected by the unfavorable weather. In California Mr. L. Belding has records from San Diego, April 28; Stockton, March 1; Marysville, March 17; Poway, May 1; San José, May 3; Olema, May 8; and Chico, May 22.

Migration of the Baltimore Oriole (*Icterus galbula*) in the Mississippi Valley During the Spring of 1884.

By W. W. Cooke.

The first record we have of this species is April 7, when it appeared at Rodney, Mississippi, latitude 31° 52′; and the last, May 25, at Oak Point, Manitoba, latitude 50° 30′. This would make an average speed of twenty-seven miles a day. As we found last year that the Oriole was a bird of quite uniform speed, let us trace the record this year and see how it agrees. St. Louis, Mo., latitude 38° 40′, is reached April 26, which would be at the rate of twenty-five miles a day, but if we go directly north we find a record on the 25th at Hillsborough, Illinois, latitude 39° 12′, which would make a speed of just twenty-seven miles a day. About April 29 and 30 there seems to have been much movement of this species; not so much the advance of the van as the filling up of the country already traversed, bringing the bulk to the country from latitude 39° 30′ southward and the van to latitude 41°, and in the west to Manhattan, Kansas, latitude 39° 12′. At twenty-seven miles a day they should have advanced by May 6 to about latitude 43° 30′. Now we have to hunt for records of this advance. May 5 and 6 are days of

especial movement in Iowa, Minnesota, Illinois, and Wisconsin. During these days there are records of 'first' all over Northern Illinois and Southern Wisconsin to latitude 43° 16′, with a stray one at latitude 44° 22′ in Wisconsin; and the State of Minnesota shows records up to latitude 43° 43′, with an extra advance along the Mississippi River to latitude 44° 32′. May 12 should have found them at latitude 46°, and we are furnished the record of its appearance at latitude 45° 25′ and 46° 33′ in Minnesota, so that although there are slight variations in speed, as would be expected, the species shows quite a remarkable uniformity in its rate of migration throughout this long distance. There is, however, no trace of the increase of speed from the south northward which was noticed last year; the highest rate being in the middle districts the first week in May. In the prairie region the records are somewhat late, the birds reaching latitude 39° 12′ in Kansas April 30, latitude 40° 53′ in Nebraska May 9, and latitude 44° 21′ in Dakota May 22. Farther west, and almost at the extreme limit of its western dispersion, it was observed at Gainesville, Texas, and Ellis, Kansas.

The full record at St. Louis is: April 26, first, three males at stand, calling. April 28, bulk of males arrive (the bulk of the species averages in all the notes about four days behind the first). May 3, first female (the average for females is about seven days behind the first, and as the arrivals of bulk may be separated into two series, one of about two or three days in the rear, and the other of seven or eight, it is evident that the first series indicates the arrival of the bulk of the males, while the second indicates the increase of the species as a whole, caused by the arrival of the females). May 5, bulk of females arrives, and many transients, making this day the height of the season (as has already been stated, this day and the next are *the* days of movement for this species, and that, too, apparently over an immense country, stretching from latitude 34° to latitude 44°). May 10, first male of last year; May 11, species very much excited, and transient birds of last year present. May 31, set found of six incubated eggs.

[East of the Mississippi Valley this species was reported from Jessamine County, Kentucky, April 18; Camden, Ind., April 24; College Hill, O., April 27; Columbus, O., April 28; Petersburg, Mich., April 30; Cleveland, O., and Battle Creek, Mich.,

May 1; New Lexington. Pa., April 28; Brooklyn, Pa., May 6; Long Island City, and Sing Sing, N. Y., May 2; Lockport, N. Y., May 4; Painted Post, N. Y., May 5; Locust Grove, and Auburn, N. Y., May 6; Watertown, N. Y., May 11; Lake George, and Hammondville, N. Y., May 13; London, Ont., May 8; Hamilton, Ont., May 9; Ottawa and Listowel, Ont., May 13; Portland, Conn., May 2; East Hartford, Conn., May 4; Holyoke, Mass., May 6; Greenfield, Mass., and Hanover, N. H., May 15; Thetford, Vt., May 10; Waterboro, Fryeburg, and Brewer, Me., May 16; Moosehead Lake, Me., and Montreal, Canada, May 24. The Baltimore Oriole is rather a late comer, usually waiting for settled weather before venturing northward. Hence its progress, being subject to comparatively few interruptions, is much more regular than in those species which migrate earlier.—C. H. M.]

Bird Migration at Sombrero Key, Florida. By C. Hart Merriam, M. D.

The southernmost station in the United States from which the Committee has received returns is Sombrero Key, one of the Florida Reefs, in latitude 24° 37′. The lighthouse stands on iron piles, over a sunken reef, and bears a fixed white light of the first order, which is one hundred and forty-four feet above sea-level, and is visible eighteen miles in clear weather. The keeper, Mr. M. E. Spencer, has taken great pains to supply the Committee with reliable data, and has sent several packages of heads and wings for identification. His report, owing both to the absolute trustworthiness of the data it contains (examples of every species mentioned having been seen by the Chairman), and to the geographical position of the station, may fairly be regarded as the most valuable of the lighthouse returns thus far received. It is given in full below.

Mr. Spencer states that more birds are killed by striking the iron framework and cylinder of the tower than by striking the lantern, and that the numbers killed must be far greater than found, because they seldom strike except on dark, stormy nights, when the wind naturally carries the greater number into the surrounding water, there being no land on the reef. He also says that many birds are seen fluttering for a few minutes in the rays of the light and then fly away, without striking.

List of Birds which struck the Lighthouse at Sombrero Key, Florida Reefs, from April 29 to September 25, 1884. By M. E. Spencer, Keeper.

Name of bird.	Date and hour of striking.	No. of Birds striking glass of Lantern.		Direction and force of Wind.	Weather.	Remarks.
		Striking.	Killed.			
Dendrœca striata	Apr. 29, 3 A.M.	2	1	S. E. Fresh	Clear	♂
Siurus auricapillus	" " 2 "	2	1	" "	"	
Dendrœca striata	May 1, 1 "	1		E. Moderate	"	
" "	" 2, 1 "	1		E. Fresh	"	
Setophaga ruticilla	" 2, 2 "	1		" "	"	♀
Dendrœca striata	" 3, 3 "	1	1	E. Moderate	Cloudy	♀
Setophaga ruticilla	Aug. 6, 10 P.M.	4		S. W. Squall	Rain	♀ & ♂ [the air."
" "	" 14, 2 A.M.	16	9	E. S. E.	"	♂ & ♀ "Many birds in
Dendrœca striata	" 14, 2 "	3	2	"	"	" "
" "	" 19, 10 P.M.	2		"	"	
Setophaga ruticilla	" 19, 10 "	3		"	"	♀
Other small birds, unknown	" 19, 10 "	4	1	"	"	
Setophaga ruticilla	" 20, 2 A.M.	5	2	E.	Cloudy	♂ & ♀
Unknown	" 20, 2 "	3	2	"	"	
Setophaga ruticilla	" 21,	1		"	"	♂
Siurus motacilla	" 21,	1	1	"	"	
" "	" 29, 1 A.M.	1	1			
Parula americana	Sept. 7, 1 "	1		S. E. Moderate	Clear	
" "	" 8, 3 "	2	1	N. E.	Rain; squally	
Dendrœca striata	" 8, 3 "	1		"	" "	
Parula americana	" 10, 9 P.M.	6		S. Light	Cloudy	
Other small birds, unknown	" 10, 9 "	4		" "	"	
Siurus motacilla	" 10, 10 "	1		" "	"	
Cardinalis virginianus	" 10, 10 "	1		" "	"	
Parula americana	" 12, 8 "	1		Calm	Clear	
" "	" 14, 8-10 "	8		N. E. Fresh	Rain; squally	
Setophaga ruticilla	" 14, 8-10 "	20	6	" "	" "	♂ & ♀

Name of bird.	Date and hour of striking.	No. of Birds striking glass of Lantern. Striking.	Killed.	Direction and Force of Wind.	Weather.	Remarks.
Dolichonyx oryzivorus	Sept 14, 8-10 P.M.	1	1	N. E. Fresh	Rain; squally	
Helonæa swainsoni	" 14, 8-10 "	10	2	" "	" "	
Dendrœca cærulescens	" 14, 8-10 "	4	2	" "	" "	♀
Mniotilta varia	" 14, 8-10 "	3	2	" "	" "	♂
Geothlypis trichas	" 14, 8-10 "	2	1	" "	" "	
Dendrœca discolor	" 14, 8-10 "	1	1	" "	" "	♂
Siurus motacilla	" 14, 8-10 "	200 or more	25	" "	" "	
Dendrœca cærulescens	" 15, 9-12 "	25	10	" "	" "	♂ (also a few ♀)
Parula americana	" 15, 9-12 "	20	8	" "	" "	
Setophaga ruticilla	" 15, 9-12 "			" "	" "	About as many of each struck as on the previous night, but more were killed or else fewer blown away. Less struck of *Siurus motacilla*.
Dolichonyx oryzivorus	" 15, 9-12 "			" "	" "	
Helonæa swainsoni	" 15, 9-12 "			" "	" "	
Mniotilta varia	" 15, 9-12 "			" "	" "	
Geothlypis trichas	" 15, 9-12 "			" "	" "	
Dendrœca discolor	" 15, 9-12 "			" "	" "	
Siurus motacilla	" 15, 9-12 "			" "	" "	
Dendrœca cærulescens	" 17, 12-4 "	10	2	E. Moderate.	Misty	♂
Parula americana	" 17, 12-4 "	100	15	" "	"	
Setophaga ruticilla	" 17, 12-4 "	7	1	" "	"	♂ & ♀
Mniotilta varia	" 17, 12-4 "	3		" "	"	♂
Helmitherus vermivorus	" 17, 12-4 "	1	1	" "	"	
" "	" 21, 8-10 "	40	8	E. S. E.	Rain; squally	
Porzana carolina	" 21, 8-10 "	2	2	"	" "	
Parula americana	" 21, 8-10 "			"	" "	
Setophaga ruticilla	" 21, 8-10 "			"	" "	♂ & ♀
Siurus motacilla	" 21, 8-10 "	40	7	"	" "	
Helonæa swainsoni	" 21, 8-10 "			"	" "	
Dendrœca cærulescens	" 21, 8-10 "			"	" "	♀
A scatttering assortment	" 22, 2-4 A.M.	23	4	E. Fresh	Rain	
Parula americana	" 25, 1-4 "	38	8	S. E. "	Rain; squally	
Scattering varieties	" 25, 1-4 "	50	10	" "	" "	

Since the above went to press I have received from Mr. Spencer another schedule. It contains fifty additional records, and supplements the above list by three species—*i.e.*, *Coturniculus passerinus*, *Melanerpes erythrocephalus*, and *Ionornis martinica*.

BIRD MIGRATION AT POINT BARROW, ARCTIC ALASKA.

By JOHN MURDOCH.

From Observations made at the United States Signal Station Ooglaamie, in North Latitude 71° 18', from Sept. 1881, till Aug. 29, 1883.

Species.	FIRST SEEN. *1882.*	FIRST SEEN. *1883.*	LAST SEEN. *1882.*	LAST SEEN. *1883.*	
1. Saxicola œnanthe	May 19		May 22		Rare
2. Cotile riparia	July 29		Aug. 10		"
3. Ægiothus canescens exilipes	June 13		July 3		"
4. Plectrophanes nivalis	Apr. 9	Apr. 19	Sept. 20		Plenty
5. Centrophanes lapponicus	May 20	May 23	Sept. 4		"
6. Zonotrichia gambeli intermedia	Sept. 4				Very rare
7. Junco hyemalis			May 24		" "
8. Nyctea scandiaca	Resid't				Rare
9. Hierofalco gyrfalco sacer	"				"
10. Lagopus albus	"				"
11. Lagopus rupestris	"				"
12. Strepsilas interpres	June 12	June 12	Aug. 29		Plenty
13. Squatarola helvetica	June 21				Rare
14. Charadrius dominicus	May 21	May 24	Aug. 28		Plenty
15. Macrorhamphus griseus scolopaceus	June 19	June 28	Aug. 17		"
16. Tringa canutus	June 11	May 30	July 5		Rare
17. Actodromas maculata	June 15	May 30	Sept. 6		Plenty
18. Actodromas fuscicollis		June 6		July 6	Very rare
19. Actodromas bairdi	May 30	May 29	July 6	Aug. 12	Plenty
20. Pelidna alpina americana	May 31	May 29	Sept. 7		"
21. Pelidna subarquata		June 8			Very rare
22. Ereunetes pusillus	July 29	July 25	Aug. 18	Aug. 15	Plenty
23. Limosa lapponica novæ-zealandiæ	Aug. 12	Aug. 11	Aug. 18		Rare
24. Tryngites rufescens	June 8	June 6	July 2	July 27	Plenty
25. Numenius borealis	May 20		July 6		Rare
26. Phalaropus fulicarius	June 4	May 30	Oct. 10		Plenty
27. Lobipes hyperboreus		June 11			Rare
28. Grus canadensis		June 2		June 20	"
29. Chen hyperboreus albatus	May 16	May 5	June 23	Aug. 15	Plenty
30. Anser albifrons gambeli	May 16	May 25	Aug. 18	July 18	"
31. Bernicla nigricans	June 13	June 7	Sept. 21		"
32. Dafila acuta	June 18	July 26	Sept. 7	Aug. 12	Rare
33. Harelda glacialis	May 18	May 24	Oct. 9		Plenty
34. Polysticta stelleri	June 5	June 11	Aug. 3	Aug. 16	"
35. Lampronetta fischeri	May 29	May 26	June 18	(Aug. 24)	Not plenty
36. Somateria v-nigra	May 16	May 19	Aug. 18		Plenty
37. Somateria spectabilis	Apr. 27	May 5	Dec. 2		"
38. Pagophila eburnea	May 22		Oct. 10		Rare
39. Larus glaucus	May 11	Mar. 29	Nov. 1		Plenty
40. Rhodostethia rosea	Sept. 10		Oct. 9		"
41. Xema sabinei	June 2	June 6	Aug. 3	(Oct. 22, '81)	"
42. Sterna macrura	June 10	June 10	Aug. 25		"
43. Stercorarius pomatorhinus	June 24	June 6		Aug. 15	Not rare
44. Stercorarius crepidatus	July 5	May 30	July 7	Aug. 12	" "
45. Stercorarius parasiticus	May 31	May 29	Aug. 27	Aug. 5	Plenty
46. Colymbus adamsi	May 15	May 25	July 30	Aug. 28	"
47. Colymbus pacificus	June 4	June 13	Sept. 28	(and later)	"
48. Colymbus septentrionalis		June 5	Aug. 15	Aug. 16	"
49. Uria grylle	Aug. 14			Feb. 3	Not plenty
50. Lomvia arra	May 22	July 7	Dec. 9		Rare

The Station was abandoned on August 29, 1883, so that dates of departure for species which remained later than this date are unknown.

BIRD MIGRATION AT THE STRAITS OF MACKINAC. BY C. HART MERRIAM, M. D.

DATA resulting from a single season's observations seem to indicate that the Straits of Mackinac lie in the line of a somewhat remarkable avenue of migration. It is probable that the great bulk of those birds which, on their way to the upper peninsula and Canada, pass between the west end of Lake Erie and the southernmost point of Lake Michigan, cross the Straits of Mackinac. The southern peninsula of Michigan, with a narrow strip from the northern borders of Ohio and Indiana, may be regarded as a great wedge with a base two hundred miles in length. Birds entering this wedge are apt to follow it northward, hemmed in on the east by Lake Huron, and on the west by Lake Michigan, till they arrive at its apex, at Mackinac. Hence it appears, in the spring migration, that the Canada-bound birds which, between the south end of Lake Michigan and the west end of Lake Erie are spread over a tract two hundred miles broad, are gradually condensed, so to speak, during their northward passage, till, in crossing the Straits of Mackinac, they occupy a belt but a few miles in width.

It must not be understood that all the birds which cross the base line between lakes Michigan and Erie, and enter the Michigan wedge, pass out at the Straits. From this total must be subtracted all those that breed in the southern peninsula—over an area of forty-one thousand, six hundred square miles—and those (a far smaller number) that migrate by other channels. The remainder, constituting the great bulk of the northern peninsula and Canada-bound individuals, cross at or near Mackinac. It is evident, therefore, that stations located in this vicinity possess unusual facilities for the study of successive bird-waves; and that the keepers of lights in these waters can, with little trouble, furnish the Committee with information of the utmost value.

Spectacle Reef, in Lake Huron, lies just east of the entrance of the Straits, and about midway between shores. The light-house rises directly from the water and is surrounded by a wooden pier ninety-five feet square. The light is of the second order and shows alternately a red and white flash every 30 seconds. It is eighty-six feet above sea-level and is visible, in clear weather,

at a distance of sixteen and one-half miles. The keeper of this light, Mr. William Marshall, has been there seven years. He states that during the migrations, in misty and rainy nights, large numbers of birds strike. On a single morning he has picked up one hundred and fifty on the pier surrounding the tower, and thinks that ten times as many as lodge on this narrow platform fall into the water. A package of specimens which he was kind enough to send the Committee for identification, early in June last, contained the following species: *Regulus calendula* (♂), *Dendræca castanea* (♀), *Dendræca maculosa* (♂ and ♀), *Dendræca cærulescens* (♂ and 2 ♀), *Geothlypis trichas* (2 ♂ and ♀), *Geothlypis philadelphia* (♀), *Helminthophila peregrina* (♂), *Myiodioctes canadensis* (♂), *Siurus auricapillus*, *Vireo philadelphicus* (3), *Vireo solitarius*, *Vireo olivaceus*, *Zonotrichia albicollis* (2), *Zonotrichia leucophrys* (♂), *Passerculus savanna*, *Melospiza lincolni*, *Contopus virens*, *Empidonax flaviventris* (2).

Mr. James Davenport, keeper of the light at McGulpin's Point, near the western entrance of the Straits of Mackinac, has also furnished the Committee with valuable information.

SWAINSON'S WARBLER.

BY WILLIAM BREWSTER.

SWAINSON'S WARBLER was discovered in 1832 near Charleston, South Carolina, by the Rev. John Bachman. His experience, as quoted by Audubon—who named the species and made it the type of a genus *Helinaia*— is as follows:* "I was first attracted by the novelty of its notes, four or five in number, repeated at intervals of five or six minutes apart. These notes were loud, clear, and more like a whistle than a song. They resembled the sounds of some extraordinary ventriloquist in such a degree, that I supposed the bird much farther from me than it really was; for after some trouble caused by these fictitious notes, I perceived it near to me, and soon shot it.

* Birds of America, Vol. II, p. 84.

"The form of its bill I observed at once to differ from all other known birds of our country, and was pleased at its discovery. On dissection it proved to be a male, and in the course of the same spring, I obtained two other males, of which the markings were precisely similar. In the middle of August of that year, I saw an old female accompanied with four young. One of the latter I obtained: it did not differ materially from the old ones. Another specimen was sent to me alive, having been caught in a trap. I have invariably found them in swampy, muddy places, usually covered with more or less water. The birds which I opened had their gizzards filled with the fragments of coleopterous insects, as well as some small green worms that are found on water plants, such as the pond lily (*Nymphæa odorata*) and the *Nelumbium* (*Cyamus flavicomus*). The manner[s] of this species resemble those of the Prothonotary Warbler, as it skips among the low bushes growing about ponds and other watery places, seldom ascending high trees. It retires southward at the close of summer."

From the above account it will appear that Dr. Bachman took at least five specimens. Of these Audubon's type, afterwards given by him to Professor Baird, is now in the National Museum, while a second is still preserved, with some other of Bachman's skins, in the Museum of the College of Charleston. The remaining three I have been unable to trace, and it is probable that, in accordance with the usage of a time when a pair of specimens was considered to sufficiently illustrate a species, they were merely examined and thrown away.

For upwards of forty years succeeding its discovery our bird was so nearly lost sight of that only three examples seem to have been taken,—the first by Mr. W. L. Jones, in Liberty Co., Georgia,* some time prior to 1858; the second by Mr. L. L. Thaxter, at Little Silver Spring, Florida, April 15, 1869,† and the third in Cuba. The last was recorded by Gundlach,‡ who, writing in 1872, merely says that it was shot at the beginning of April near Havana, by his friend Don Ramon Fons, and that it represents the only Cuban occurrence of which he has any knowledge.

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* Bd., Cass. and Lawr., Bds. N. A., 1858, p. 253.

† Maynard, Birds Fla., 1873, p. 47.

‡ J. f. O. 1872, p. 412.

Next in chronological order comes a specimen which I saw in the collection of Mr. Christopher D. Wood, a Philadelphia taxidermist, in 1873, and which, if I remember rightly, was killed near Beaufort, South Carolina, in April or May of the preceeding year. This bird, so far as I know, has escaped the notice of previous recorders. At last accounts it was still in Mr. Wood's possession.

The year 1878 brought an important contribution to our knowledge of the mysterious bird from the pen of Mr. N. C. Brown, who met with three specimens at Coosada, Elmore County, Alabama, and who, after Bachman, seems to have been the first observer to learn anything respecting its habits. Mr. Brown's account* of his experience is so interesting and graphic that I transcribe it in full:

"On April 12, while forcing my way through the dark, rank forest which lies about the source of Coosada Creek, I caught the final notes of an unknown song uttered close at hand. Instantly seating myself on a fallen tree, I awaited its repetition. The woods about me were quite dry and comparatively deserted by birds, but along the neighboring creek many Vireos, Thrushes, and Swamp-Warblers were producing such a babel of sounds that I feared the voice of my unknown songster might escape me. After the lapse of a few minutes, however, a bird emerged from a thicket within a few yards of me, where he had been industriously scratching amongst the fallen leaves, flew into a small sapling, and gave utterance to a loud, ringing, and very beautiful song. Seen in the dim light of the woods, he bore a decided resemblance to the Louisiana Water Thrush, and his song might almost have passed for an exceptional performance by that bird; but I at once suspected his true identity, and in a few seconds held in my hand the lifeless body of a male Swainson's Warbler.

"During the succeeding nine days I repeatedly and most carefully searched this tract of woods and other localities apparently equally favorable, without detecting additional specimens. Finally, April 22, while exploring a slough near the union of the Coosa and Tallapoosa Rivers, I met with two more males. Piloted by their song, I readily approached them, but, unfortunately, lost one, badly wounded, in the impenetrable cane.

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* Bull. N. O. C., Vol. III, 1878, pp. 172, 173.

"I was impressed by the absorbed manner in which this bird sings. Sitting quietly upon a limb of some small tree, he suddenly throws back his head and pours forth his notes with the utmost fervor and *abandon*. During his intervals of silence he remains motionless, with plumage ruffled, as if completely lost in musical reverie."

Contemporaneously with the above appeared a note* by Mr. Ridgway announcing the supposed occurrence of the species at Mt. Carmel, Illinois, where a bird thought to be Swainson's Warbler was heard and seen, but unfortunately not secured. Some three years later the same author recorded† the detection of the species in Texas, a specimen having been shot there in the Trinity River bottom, Navarro County (presumably in the spring of 1880, though the date is not given), by Mr. J. Douglas Ogilby.

Excluding certain New England citations long since shown to be erroneous, the above is believed to comprise everything essential that occurs in the records down to the year 1884. During 1884 there were two announcements, the first a mere mention by Mr. Walter Hoxie‡ of the finding the species at Frogmore, South Carolina; the other a short article by Dr. Coues,§ embodying notes furnished him by Mr. Arthur T. Wayne. As the latter paper is anticipatory to the matter which I am about to present, as well as based on data which I am in a position to elaborate more fully, as well as perhaps more accurately, than was Dr. Coues, I shall not refer to it again, except, possibly, to call attention to certain statements which are either not warranted by the evidence at hand, or directly negatived by it.

In the hope of adding to the scanty store of knowledge just reviewed I visited South Carolina in May, 1883, expressly to search for Swainson's Warbler. Having letters of introduction to gentlemen in Charleston, I made that city my headquarters, and from it rambled over the neighboring country, exploring the woods and swamps with all possible care and thoroughness. Of this trip it is perhaps enough to say that it proved a failure, as far

* Bull. N. O. C., Vol. III, 1878, p. 163.

† Bull. N. O. C., Vol. VI, No. 1, Jan. 1881, pp. 54, 55.

‡ Orn. and Oöl., Vol. IX, No. 11, p. 138.

§ Forest and Stream, Nov. 6, 1884, pp. 285, 286.

as its chief object was concerned, for I was obliged to return to Massachusetts without having found the bird of which I was in quest. One promising result was accomplished, however, Mr. Arthur T. Wayne, a young local collector whom I had employed as guide and assistant, and who had become much interested in the search, being engaged to continue it in my interests. But during the year 1883 he also was unsuccessful.

Although discouraged I by no means gave up hope, but early the next spring (1884) returned to Charleston prepared to devote the greater part of the season to the pursuit. The first three weeks of April passed profitably enough, as far as general collecting was concerned, but without developing anything of special importance or interest. On the evening of April 22, however, Wayne, who had been out alone that day, called, and handed me a bird with the simple question, "What is it?" One glance was enough—the long sharp bill with its compressed ridge extending well back on the forehead, the plain olive brown back and reddish crown, and the delicate, lemon-tinted white of the under parts were all unmistakable, for of course it was not the first Swainson's Warbler I had seen. It was, however, the very first *freshly-killed* one;—and who does not know the difference!

Just a week later the second specimen was taken. I stumbled on it quite by accident while exploring a tract of oak scrub covering a dry, in fact positively sandy, ridge on James Island, opposite Charleston. It was feeding on the ground in company with an Ovenbird (*Siurus auricapillus*), and almost immediately flew up into a sapling within a few yards of me, so near, indeed, that I had to retreat several paces before shooting. Wayne's bird was a male, this a female, with well-developed ovaries, but evidently not ready to breed by at least a week or two.

After this the tide of success rose, if not rapidly, at least steadily, and during the time that intervened before my departure for the North (May 10) seven more specimens were secured; thus I took home nine in all, or nearly as many as had been previously collected since the discovery of the species. At the time this success was sufficiently gratifying, but it proved only the earnest of what was to come, for during the following summer and autumn, Mr. Wayne sent me thirty-six more; all that he

took, so he assures me, with the exception of five others disposed of elsewhere. The total number killed by us near Charleston in 1884 is accordingly just fifty.

From the acquisition of so large a series in a single season it might be inferred that Swainson's Warbler is an abundant bird near Charleston. This, however, is certainly not the case. Indeed, there is no present evidence to show that it is even common there except in a few localities, and the keenest collector may cover miles of apparently suitable ground without finding a single specimen. Mr. Wayne has had this experience repeatedly, while in no instance save one (when he fell in with a brood of young accompanied by their parents) has he taken more than three specimens in a day. His general success was simply the result of the most persistent efforts extended over a period of several months, during which almost his entire time was devoted to the pursuit of this species alone. Most of his specimens were taken in a somewhat limited area where, during the breeding season, the females were spared that they might serve as decoys to bachelor males. So successful was this plan that in one instance no less than five males were shot to one female. Many of these were doubtless attracted long distances. After July, there was an appreciable if slight influx of young birds in fall plumage. Some of them may have been reared near at hand, but the majority evidently came from swamps further inland or to the northward. This movement continued through August, but at the close of that month it waned. The last specimen was taken September 25. Thus the stay of the species in South Carolina would seem to extend over a period of a little more than five months.

The specimen killed on James Island, and another shot two days later, about three miles to the westward of Charleston, were the only ones met with in the immediate vicinity of that city. Both were undoubtedly migrants, and it is probable that the 'sea islands' generally, with the adjacent mainland, are visited regularly during the spring and fall flights. They may harbor a few breeding birds also, but of this we have no present proof.* On the contrary, after the migrations passed we failed to find

* Since writing the above I have examined--through the kindness of Mr. C. K. Worthen—a specimen taken by Mr. Joseph H. Batty at St. Helena Island, South Carolina, May 30, 1884. This date is fairly within the breeding season.

the species nearer Charleston than a place about six miles to the westward and directly inland. At this point the rice plantations begin. There may be no actual connection between these facts, but certain topographical as well as floral characteristics of this rice belt incline me to believe that its limits may be found to correspond more or less closely with those of the summer distribution of Swainson's Warbler in South Carolina.

While the facts already given prove incontestably that the present species may occur at times in dry scrubby woods, or even in such open situations as orange groves, it certainly haunts by preference the ranker growth of the swamps, to which, indeed, it appears to be confined during the breeding season. In South Carolina, as elsewhere, the term swamp is somewhat general in application. As our Warbler is by no means equally general in his tastes but, on the contrary, exceptionably fastidious in the choice of a summer home, it is necessary to be more explicit. The particular kind of swamp to which he is most partial is known in local parlance as a 'pine-land gall.' It is usually a depression in the otherwise level surface, down which winds a brook, in places flowing swiftly between well-defined banks, in others divided into several sluggish channels or spreading about in stagnant pools, margined by a dense growth of cane, and covered with lily leaves or other aquatic vegetation. Its course through the open pine-lands is sharply marked by a belt of hardwood trees nourished to grand proportions by the rich soil and abundant moisture. Beneath, crumbling logs cumber the ground, while an under-growth of dogwood (*Cornus florida*), sassafras, viburnum, etc., is interlaced and made well-nigh impenetrable by a net-work of grapevines and greenbriar. These belts—river bottoms they are in miniature—rarely exceed a few rods in width; they may extend miles in a nearly straight line, but ordinarily the brooks which they conceal form short tributaries of streams of larger size, which in turn soon mingle their waters with those of neighboring rivers. More extensive swamps, especially those bordering the larger streams, are subject to inundations which, bringing down deposits of alluvial soil, bury up or sweep away the humbler plants, leaving a floor of unsightly mud, interspersed with pools of stagnant water. Such places answer well enough for the Prothonotary and Hooded Warblers, which, although essentially swamp-lovers, are not to

any extent terrestrial; but you are not likely to find Swainson's Warbler in them, unless about the outskirts, or on islands elevated above the reach of the floods. Briefly, four things seem indispensable to his existence, viz., water, tangled thickets, patches of cane, and a rank growth of semi-aquatic plants.

All four conditions are fulfilled by the 'pine-land galls.' These belts, with their cool shade, running water, and luxuriant vegetation, attract many thicket-haunting birds. They invariably swarm with Cardinals, White-eyed Vireos, Carolina Wrens, and Hooded Warblers, while there are occasional pairs of Maryland Yellow-throats, and now and then a Wood Thrush, sounding his flute-like notes, or a Painted Finch, warbling softly among the bushes. From the pines outside come the sweet refrain of the Yellow-throated Warbler, the petulent cry of the Great-crested Flycatcher, and, from somewhere in the distance, the matchless reverie of Bachman's Finch.

In the early morning, before the sun's rays have evaporated the delicate frosting of dew-drops from the fronds of the ground palmetto, or invaded the swamp, still cool and fragrent after the night, one may hear fifty birds singing in such a spot. The effect is confusing at first, but the practised ear soon identifies the various performers, and a few minutes spent in this way will often give the listener a fairly accurate idea of the bird life by which he is surrounded. Amid the general din, if he be fortunate, may be heard the song of Swainson's Warbler, a performance so remarkable that it can scarcely fail to attract the dullest ear, while it is not likely to be soon forgotten. It consists of a series of clear, ringing whistles, the first four uttered rather slowly and in the same key, the remaining five or six given more rapidly, and in an evenly decending scale, like those of the Cañon Wren (*Catherpes mexicanus conspersus*). In general effect it recalls the song of the Water Thrush (*Siurus nævius*). It is very loud, very rich, very beautiful, while it has an indescribably tender quality that thrills the senses after the sound has ceased.

It is ventriloquial to such a degree that there is often great difficulty in tracing it to its source. You advance confidently enough at first, when suddenly the sound comes from behind you. Retracing your steps, the direction is again changed. Now it is to the right, shortly after to the left; one moment in the tree tops

overhead, the next among the bushes almost at your feet. Hurrying hither and thither with rapidly diminishing caution you finally lose all patience and dash through the tangle, tripping over hidden obstructions or perhaps floundering in morasses at iminent risk of being bitten by some venomous moccasin. When at length you pause near the starting point, tired of the fruitless pursuit, and convinced that your will-o'-the-wisp has been momentarily changing his position, you may perchance discover him sitting quietly near the end of some low branch, where he has probably been all the while, calmly curious perhaps with respect to the strange two-legged creature rushing about beneath, but more likely lost to everything except his own ecstatic music. At times, however, he actually will flit from perch to perch as you advance, keeping more or less concealed among the foliage.

In addition to its song this Warbler utters a soft *tchip* indistinguishable from that of *Parula americana*, but wholly unlike the cry of any Ground Warbler of my acquaintance. I heard this note on only one occasion, when the bird was excited over some disturbance in the shrubbery, perhaps the presence of a snake.

Although a rarely fervent and ecstatic songster, our little friend is also a fitful and uncertain one. You may wait for hours near his retreat, even in early morning, or late afternoon, without hearing a note. But when the inspiration comes he floods the woods with music, one song often following another so quickly that there is scarce a pause for breath between. In this manner I have known him sing for fully twenty minutes, although ordinarily the entire performance occupies less than half that time. Such outbursts may occur at almost any hour, even at noontide, and I have heard them in the gloomiest weather, when the woods were shrouded in mist and rain.

When not singing Swainson's Warbler is a silent, retiring bird, spending nearly his entire time on the ground in the darkest recesses of his favorite swamps, rambling about over the decaying leaves or among the rank water-plants in search of the small beetles which constitute his principal food.* His gait is distinctly a walk, his motions gliding and graceful. Upon alighting in the branches, after being flushed from the ground, he assumes a statuesque attitude, like that of a startled Thrush. While singing he

* The stomachs of all the specimens that I have examined contained exclusively small Coleoptera.

takes an easier posture, but rarely moves on his perch. If desirous of changing his position he flies from branch to branch instead of hopping through the twigs in the manner of most Warblers. Under the influence of excitement or jealousy he sometimes jets his tail, droops his wings, and raises the feathers of the crown in a loose crest, but the tail is never jerked like that of a *Geothlypis*, or wagged like that of a *Siurus*. On the contrary, his movements are all deliberate and composed, his disposition sedentary and phlegmatic. At the height of the mating season the males do occasionally show some spirit, chasing one another among the trees, or even attacking larger birds; but these lapses, like their song periods, seem to form comparatively rare breaks in a life which, for the most part, is passed in profound quiet and seclusion.

In these, as well as other characteristics, he is the very counterpart of the Connecticut Warbler, as I have observed the latter in the swamps about Cambridge. In none of them does he bear the least resemblance to the Worm-eating Warbler, with which he has been so closely associated by ornithologists. The Worm-eater is an active, restless bird, spending much of its time winding about the trunks and branches of trees in the manner of *Mniotilta*. Moreover, it breeds by preference, if not invariably, in dry situations, such as tracts of oak scrub, on the steep sides of elevated ravines or mountain slopes—precisely such ground, in short, as is resorted to by the Ovenbird (*Siurus auricapillus*). Systematists may make light of such considerations, but *H. swainsoni* has, in addition, certain structural affinities with *Oporornis* to which I shall presently call attention.

Judging by my personal experience, Swainson's Warbler is at all times a singularly unsuspicious bird. If singing he may be usually approached within a few yards, even though the crashing that inevitably marks your every movement among the thickly-growing canes has long ago alarmed and silenced the other songsters of the swamp. When flushed from the ground he flies in silence to the nearest low branch, whence he regards you with a half-timid, half-wondering expression, precisely like that of the Connecticut Warbler under similar conditions. You may startle him by an unexpected or threatening motion, for the tamest birds are subject to sudden panic; but ordinarily, if once distinctly seen he is certainly yours—barring a miss or some other accident.

The chief difficulty is to find him, for if on the ground his coloring harmonizes so well with that of the general surface that the keenest eye may overlook him, while he is not apt to start unless almost trodden on. Like most thicket-haunting birds, however, he is intensely curious, and by concealing yourself and producing a shrill screeping or chirping you may often call him directly to you. More than once has this plan been successful when I had no idea that the bird was near. On one such occasion the victim proved a female, which had unmistakably just laid her full set of eggs. I had barely begun to 'screep' on the edge of a small cane-brake bordering a brook, and surrounded by comparatively open ground swept clear of undergrowth, and the usual *débris*, by a recent fire, when there was a glimmer of wings and the Warbler appeared, alighting on the stem of a cane. Upon shooting and examining her I discovered that she was incubating. As it was near noon of a very sultry day, and birds of all kinds closely hidden, I felt sure that she had come directly from the nest. This conviction became almost a certainty when, a few paces further on, I flushed and secured her mate. Needless to say, the remainder of the day was devoted to searching that thicket. But although it covered only a few square rods of surface, the nest could not be found. Speculations as to its position are idle, but there seemed to be only two available sites—the stems of the canes and the ground.

The date of this episode was May 3, which probably represents about the beginning of the breeding season. Mr. Wayne met with a brood of three young June 9, and another of four June 11. Specimens of both broods are before me. They are in first plumage and were evidently only a few days from the nest, but sufficiently feathered to fly well. All the young taken after this date were in autumnal plumage, which seems to be very quickly put on.* They frequented the same places as the spring birds and had essentially similar habits, though, according to Mr. Wayne, they were shyer, or at least more timid.

* In his 'Forest and Stream' article Dr. Coues quotes Mr. Wayne as saying: "The first brood is abroad late in June, that is on the way [wing?]; it usually numbers four. The second brood is abroad early in August." The inaccuracy of the first statement will appear on comparing it with the dates above given; the assumption that the bird regularly rears two broods in a season is, in my opinion, equally unwarranted by the evidence at hand.

CRITICAL NOTES.—Swainson's Warbler has been considered nearly related to the Worm-eating Warbler and, by most recent writers, even placed with it in the genus *Helmitherus*. It has been occasionally separated, however, at least subgenerically, under the Audubonian name *Helinaia*. With abundant material for study and comparison, I am convinced that it merits such separation, and furthermore that *Helinaia* should stand as a full genus. It may be characterized as follows:

Genus **Helinaia** *Audubon*.

CHAR.—Bill long, robust at base, tapering to a sharp point, smooth or slightly notched at tip; the culmen slightly curved, its ridge compressed, elevated and extending well back on the forehead, resembling in this, as in some other respects, the bill of the Meadow Lark (*Sturnella*). Wings long, rather rounded, the first quill always shorter than the second and third, which are about equal. Tarsus stout, slightly longer than the middle toe. Feet large, flesh-colored. *Eminently terrestrial.*

Helinaia swainsoni *Aud.*

SP. CHAR.—(Adult ♂, breeding plumage, No. 8974, Coll. W. B., Charleston, South Carolina, May 1, 1884.) Crown and nape reddish-brown; remainder of upper parts, including the sides of neck, clear olive, the wings, tail, and upper tail-coverts tinged with reddish-brown; under parts creamy white with a lemon-yellow tinge, most pronounced on the breast and abdomen, faintest on the throat and crissum; sides of body brownish olive; sides of breast olivaceous-ashy, extending completely across the breast in a broad but rather indistinct band of pale, nebulous spots; throat, abdomen, and crissum immaculate; a dusky stripe starting at the lores (which are nearly black) passes backward along the side of the head intersecting the eye and separating a conspicuous, brownish-white superciliary stripe from the region below the eye, which is dappled with reddish-brown on a creamy-white ground. There is also a short, yellowish, concealed median stripe on the forehead. Iris hazel; legs and feet flesh-colored (notes taken from the freshly killed specimen). Sexes indistinguishable.

Dimensions.—Length, 5.65; extent, 9.00; wing, 2.82; tail, 2.03; tarsus, .74; culmen from base, .70; from feathers, .61; from nostril, .42; depth of bill at anterior corner of nostril, .18; width at same point, .13.

Juv., first plumage.—(♂ No. 224, A. T. W., Charleston, June 9, 1884). Wings and tail essentially as in the adult; abdomen dirty-white; rest of plumage, including the crown, nape, back, rump, throat, breast, sides of head, neck and body, and the wing-coverts, nearly uniform dull cinnamon-brown, without bands, spots, or any other markings whatever, even on

the head. Another specimen from the same brood, but apparently older, has the lores distinctly black, the light space on the abdomen nearly obscured by a brownish tipping on many of the feathers, and the general coloring lighter, approaching chocolate-brown in places.

The above-described plumage is very odd and striking. In general coloring the bird seems to most nearly resemble the young of *Oporornis formosus.** It differs so widely from the adult *H. swainsoni* that no one would suspect their identity were it not for the bill, which in the smallest specimen before me shows all the essential characteristics of the genus.

Juv., fall plumage.—(♂ No. 354, A. T. W., Charleston, Aug. 25, 1884.) Entire upper parts rich olive strongly tinged with reddish-brown, the crown scarcely deeper-colored than the back, the wings a trifle redder; loral stripe blackish; superciliary stripe tinged with yellow; under parts strongly yellowish. Otherwise like the adult.

Variations.—Among the adults and fall-plumaged young before me there is much variation in the size and shape of the bill, as well as in general coloration. Some examples have the upper and lower outlines of the bill nearly if not quite straight; in others the culmen is curved, the gonys often with an appreciable angle. Again some specimens have the bill decidedly *notched* at the tip, although in the majority it is plain. As a rule (but not invariably) young birds seem to have shorter, slenderer, and straighter bills than do the adults.

The color variations range between two extremes. In one the crown, wings, and tail are bright reddish-brown—almost reddish-chestnut on the secondaries—in decided contrast with the back, which is deep brownish-olive; the underparts strongly yellowish. In the other the wings and tail are concolor with the back, which is of a plain grayish olive; the crown dull reddish-brown; the under parts creamy-white, scarcely, if at all, yellowish. That these variations are not sexual is evident, for the richest-colored bird in the whole series is a female (No. 137, A. T. W., May 10), and several of the dullest are males; that they are not connected with age is equally certain, for among the young birds still bearing traces of first plumage both types occur. As a rule, however, the young in autumn are more apt to be yellow beneath than are breeding birds, but in none of the specimens which I have seen is the yellow deeper than in a male taken May 5 (No. 9015, W. B). Adults in autumn are positively indistinguishable from breeding birds. Young in full autumnal dress may be generally, if not invariably, recognized by the darker color of the bill and the much more uniform coloration of the upper parts, the crown in some specimens being almost concolor with the back, wings, and tail, a condition never seen in spring birds.

In markings the variations are trifling. The nebulous spotting on the breast is indistinct in many birds, and in a few, barely appreciable, the ashy being practically confined to the sides, and the remainder of the

* As described by Mr. Ridgway, Bull. N. O. C., Vol. III, No. 2, April, 1868, p. 60. I have no specimens for comparison.

Measurements.

No.*	Sex.		Locality.	Date.	L'ngth.	Extent.	Wing.	Tail.	Culmen from base.	Culmen from feathers.	Culmen from nostril.	Depth of bill at nostril.	Tar.	Mid'le toe & claw.	Remarks.
8881	♂	ad.	Charleston, S. C.	April 22	.....	.....	2.69	2.04	.69	.56	.44	.16	.73	.69	Tail emarginate
8938	♀	"	" "	" 29	5.15	8.70	2.78	2.08	.72	.62	.46	.16	.70	.66	" rounded
8974	♂	"	" "	May 1	5.65	9.00	2.82	2.03	.70	.61	.42	.18	.74	.....	" "
8996	♂	"	" "	" 3	5.50	8.60	2.78	1.91	.72	.57	.46	.17	.74	.69	" emarginate
8997	♀	"	" "	" 3	5.55	8.55	2.70	2.06	.70	.58	.45	.16	.72	.65	" square
9015	♂	"	Otranto, S. C.	" 5	6.50	8.90	2.80	2.17	.....	.....	.....	.17	.71	.66	" emarginate
9055	♂	"	" "	" 8	.....	.....	2.78	2.01	.74	.64	.46	.18	.75	.73	" "
137	♀	"	Charleston, S. C.	" 10	.....	.....	2.64	1.85	.71	.62	.45	.17	.69	.67	" square
170	♂	"	" "	" 22	.....	.....	2.70	1.92	.65	.57	.41	.17	.65	.65	" "
	♂	"	" "	" 23	.....	.....	2.74	2.06	.74	.66	.47	.17	.75	.70	
210	♂	"	" "	June 6	.....	.....	2.76	2.00	.69	.62	.45	.16	.72	.67	
	♂	"	" "	" 9	.....	.....	2.66	2.05	.72	.62	.45	.16	.73	.70	
222	♂	"	" "	" 9	.....	.....	2.96	2.10	.70	.62	.47	.12	.73	.66	
	♂	"	" "	" 9	.....	.....	2.82	1.91	.66	.62	.45	.17	.71	.67	
231	♂	"	" "	" 11	.....	.....	2.86	2.00	.70	.60	.44	.16	.68	.70	Tail emarginate
230	♂	"	" "	" 11	.....	.....	2.70	2.02	.69	.59	.43	.16	.73	.66	" "
	♂♀	"	" "	" 12	.....	.....	2.90	2.07	.71	.64	.44	.16	.72	.68	
237	♂	"	" "	" 13	.....	.....	2.80	1.99	.74	.65	.47	.16	.70	.68	" "
243	♂	"	" "	" 17	.....	.....	2.76	2.13	.65	.60	.47	.17	.71	.68	
252	♂	"	" "	" 19	.....	.....	2.95	2.10	.74	.62	.46	.17	.73	.70	" "
276	♂	"	" "	July 4	.....	.....	2.85	1.95	.71	.60	.45	.16	.66	.62	" rounded
	♂	"	St. Helena Id., S.C.	May 30	.....	.....	2.75	2.02	.70	.61	.46	.16	.70	.63	Coll. J. H. Batty
1783	♂	"	Coosada, Ala.	April 22 1878	.....	.....	2.85	2.10	.71	.60	.47	.16	.70	.65	Tail square Coll. N.C.Brown

* Numbers below 1000 are those of Mr. A. T. Wayne.

upper parts immaculate. The yellow of the median stripe on the forehead is usually restricted to the bases of the feathers, but in some specimens it extends to their tips, forming a conspicuous marking. In others again it is wholly wanting.

The place which *Helinaia* should occupy in systematic lists is a somewhat puzzling question. Its long wings, large, flesh-colored feet, and sluggish terrestrial habits indicate an affinity with *Oporornis;* its acute, compressed bill and short tarsi a perhaps stronger one with *Helmitherus*. In many respects it seems to form a connecting link between these two genera, with *Helmitherus* extending the chain towards *Helminthophila*. Baird apparently held some such view in 1858, for he placed *Helmitherus* (in which he included *Helinaia*) between *Icteria* and *Helminthophila*, and *Oporornis* immediately before *Icteria*. Subsequently he separated *Helminthophila* further from *Oporornis* by the intervention of the additional genera *Perissoglossa*, *Dendræca*, and *Siurus*, and later authorities have widened the gap still more. Leaving out of consideration the Cœrebidæ, a troublesome family which seems to grade insensibly into the Sylvicolidæ through such genera as *Helminthophila* and *Perissoglossa*, our North American Sylvicolidæ might be very naturally arranged as follows: 1, *Mniotilta;* 2, *Dendræca* (including *Perissoglossa* and *Peucedramus* as sub-genera); 3, *Protonotaria;* 4, *Parula;* 5, *Helminthophila;* 6, *Helmitherus;* 7, *Helinaia;* 8, *Siurus;* 9, *Oporornis;* 10, *Geothlypis;* 11, *Icteria;* 12, *Myiodioctes;* 13, *Setophaga;* 14, *Cardellina;* 15, *Ergaticus;* 16, *Basileuterus*. The Cœrebidæ, however, cannot be thus conveniently ignored, and the general subject is far too important and comprehensive to be discussed within the limits of the present paper.

RECAPITULATION.—Within the United States Swainson's Warbler has been taken only in South Carolina, Georgia, Florida, Alabama, and Texas. There is but one extralimital record (Havana, Cuba). It has been erroneously accredited to New England, on incomplete evidence to Southern Illinois. It is not known to winter within the United States, but on the contrary seems to emigrate southward before the approach of cold weather (latest date, September 25), returning again in April (earliest date, April 12). It has occurred in numbers only near Charleston, South Carolina,[*] where alone it has been positively ascertained

[* *Cf.* p. 62 of this number of 'The Auk.'—EDD.]

to breed. During the migrations it sometimes visits dry or open situations; it breeds, as far as known, only in the most tangled swamps. It is an exquisite but fitful singer; when not singing a silent bird, retiring and sedentary in disposition, eminently terrestrial in habits.

Thus much light on what has been an obscure subject! Important details remain to be worked out, such as the general distribution of the bird in the South, its manner of nesting, etc. It is to be hoped that the near future will see all these points made clear. Meanwhile we may congratulate ourselves on what in effect, if not literally, is the rediscovery of another 'lost' species.

THE HEATH HEN OF MASSACHUSETTS.

BY WILLIAM BREWSTER.

ALTHOUGH the Pinnated Grouse was found rather numerously during the first half of the present century at several localities in the Middle and New England States, no specimens from this region seem to have come under the critical notice of modern ornithologists. Accordingly it is with peculiar pleasure and interest that I have entered into an examination of three examples kindly loaned me by Mr. F. T. Jencks, who received them directly from Martha's Vineyard in the autumn of 1879. Compared with western specimens, they prove to be smaller, with relatively, as well as actually, shorter tarsi; the feathers of the neck-tufts narrower and acutely instead of obtusely lance-pointed; generally redder or rustier coloring above, and much less white or whitish below. The neck-tufts, also, have only from four to five instead of from seven to ten rigid feathers.

It may be pretty safely assumed that at the time of the first settlement of the country, when the Pinnated Grouse ranged more or less uninterruptedly from Eastern Massachusetts to beyond the Mississippi, all the birds found east of the Alleghanies were similar to these island specimens; or, to put case more comprehensively as well as definitely, that the large, light-

colored Prairie Hen of the open grassy plains and prairies of the West originally had a smaller, darker, and redder eastern representative distributed, perhaps rather locally, in scrubby pine and oak tracts, throughout Southern New England and portions of the Middle States. At that time it is not unlikely that the two forms intergraded over such intermediate ground as Western Pennsylvania and Eastern Ohio and Kentucky. However this may have been, they cannot do so now — unless fortuitously, as by reversion — for the last remnant of the eastern stock still lingering on Martha's Vineyard is separated from the extreme eastern confines of the present range of the western bird by an interval of about eight hundred miles.

As these eastern Grouse are distinguishable from their western cousins by well-marked and apparently constant characters,* and as the two birds are now so widely separated geographically that they cannot intermingle, it follows that they may be consistently recognized as distinct if closely related species, for the probability that their separation has been brought about by man's intervention, and within historic times, can have no real bearing on the case. Unfortunately the Prairie Hen must receive the new name, for there is little doubt that the *Tetrao cupido* of Linnæus was really the eastern form. This is indicated by the fact that its habitat is given as "in Virginia"†; moreover, there are good reasons for believing that Linnæus based his diagnosis (which is too brief and general to give much more than generic characters) on Catesby, whose work he cites. If this assumption be granted, the case is freed from all obscurity, for Catesby's figure, although an absurd caricature, was evidently drawn from the eastern bird, while his discription mentions several of the characters which separate the latter from the Prairie Hen. Both plate and description were taken from some live specimens which Catesby saw in 1742 "at the right honourable the Earl of *Wilmington's* at *Chiswick*, who told me they were natives of *America*, but from what particular part they came his Lordship knew not." Other considerations aside, it is

* I have examined in this connection upwards of a hundred western specimens in the Boston markets.

† Doubtless a loose statement, as I cannot find that it ever occurred south of Pennsylvania.

hardly possible that in those early days they could have been obtained from anywhere west of the Alleghanies.

Having thus briefly stated a case which is not less remarkable than interesting, I propose to distinguish the forms in question as follows:

Cupidonia cupido (*Linn.*). HEATH HEN.

SP. CHAR. ♂. Ground-color above light reddish-brown or rusty; beneath rusty-white with transverse bars of dark reddish-brown, the dark color prevailing over the lighter on the exposed portions of the feathers; plumage of tibiæ and tarsi brownish-cinnamon thickly mottled with whitish; neck-tufts composed of from three to five narrow, acutely lance-pointed, stiffened feathers, with about the same number of overlapping coverts. Wing, 8.35; tarsus, 1.75; bill, .38 deep, by .55 long from nostril.

♀. Smaller (wing, 7.93); darker and rustier; the dark bars beneath dull *black;* tail dark clove-brown with numerous fine, irregular, rusty bars.

Habitat.— Martha's Vineyard, Massachusetts; formerly found at various points in Eastern Massachusetts, Southern Connecticut, Long Island, New Jersey, and Pennsylvania; perhaps also Southern New England and the Middle States generally. A *woodland* species, inhabiting scrubby tracts of oak and pine.

Cupidonia pinnata nov. spec.* PRAIRIE HEN.

SP. CHAR. Ground-color above brownish-ochraceous tinged with gray; beneath white with transverse bars of clear dusky brown, this color *not* prevailing over the lighter tints; tibiæ and tarsi brownish-ochraceous *not* mottled with whitish; neck-tufts comprising from seven to ten stiffened feathers, obtusely pointed or even broadly rounded at their tips. Wing, 9.00; tarsus, 2.10; bill, .40 deep by .60 long from nostril.

♀. Smaller, similar in general color and markings, but with the tail barred.

Habitat.— Prairies, from Illinois westward. A bird of the open, breeding on treeless plains, and seldom or never inhabiting timber.

Cupidonia pinnata has been too often and carefully treated under the name *C. cupido* to require further consideration here. The eastern species, however, although destined to bear a familiar name, is practically a new bird. Accordingly I find it necessary to redescribe the *original C. cupido* as follows:

♂ (No. 5330, Coll. W. B., Martha's Vineyard, Mass., Nov. 1879. From F. T. Jencks). Ground-color of upper parts light reddish-brown some-

*Types: ♂ No. 2689, ♀ No. 2690, Coll. W. B.—Vermilion, Dakota, January 20, 1877.

what ochraceous on the rump; under parts dark reddish-brown with some concealed rusty-chestnut on the jugulum, the feathers everywhere, except on the throat, anal region, and under tail-coverts, crossed by from one to five narrow, continuously-transverse bars of pale rusty or white. These bars, except on the sides posteriorly, are narrower than the brown spaces which they separate; hence the darker color predominates. Upper parts diversified by numerous ragged, irregular-shaped markings of blackish-brown or dull black, usually continuous across both webs of the feather, but never embracing its tip; forehead, sides of head above the eye, and entire occiput rusty brown mottled with dull black; crown black, each feather tipped with buff and narrowly margined with rusty; throat and lores immaculate creamy buff; sides of head below the eye of a deeper, more rusty buff, with an isolated patch of dark brown on the cheeks, and a stripe of reddish-brown, extending from the rictus to the ends of the auriculars, passing directly below the eye but leaving the eyelid buff; scapulars with large and very conspicuous terminal spots of white tinged with fulvous; primaries and tail plain brownish or dusky drab, the former with small round spots of pale rusty on their outer webs, the latter tipped narrowly with white; plumage of tibiæ and tarsi pale cinnamon-brown; each feather tipped with whitish, giving the parts a mottled appearance. Crissum and under tail-coverts white, the latter with irregular marginal spots of rusty or dull black. Neck-tufts 2.60 long, composed of five narrow, acutely lance-pointed feathers, the under ones plain, the middle two with shaft-lines of buff extending in from the tips an inch or less, the exterior (overlapping) ones with much broader central stripes continued nearly to the base of the feathers.

Dimensions.—Wing, 8.35; tail, 3.75; culmen from skull, 1.06; do. from feathers, .70; do. from nostril, .55; depth of bill at nostril, .38; tarsus, 1.75; middle toe, 1.60; its claw, .53.

♀ (No. —, Coll. F. T. Jencks, Martha's Vineyard). Smaller (wing, 7.93); with merely rudimentary neck-tufts; the ground tints more rusty; the dark markings coarser and blacker; the tail dark clove-brown crossed by numerous narrow, irregularly-transverse bars of rusty.

The general differences between this bird and its western representative, *C. pinnata*, are difficult of adequate definition, for the reason that they consist largely in shades of color rather than in markings. Its small size, short tarsus, acutely lance-pointed feathers of the neck-tufts, white-tipped scapulars, general reddish coloration above, and restricted light markings beneath are, however, readily appreciable and apparently constant characters. The bird above described is the *least* extreme in most of these respects. Another before me (♂, No.—, Coll. F. T. J., Martha's Vineyard) actually has the greater part of the breast posteriorly without exposed light bars, the nearly uniform reddish-brown plumage being merely tipped with hoary. This bird is also peculiar in having the neck-tufts dull brownish-chestnut.

The female above described differs more from females of *C. pinnata* than do eastern from western males. The under parts (except the crissum and tail-coverts) are barred heavily with dull *black* on a rusty orange ground. This rusty suffuses the lighter portions of the plumage elsewhere, even tingeing the cheeks and throat.

The Heath Hen (I use the vernacular name by which it was known to our forefathers) is still common on Martha's Vineyard, where it is mainly, if not exclusively, confined to the woods, haunting oak scrub by preference, and feeding largely on acorns. Being strictly protected by law, but few are probably killed. I am told by one of the Boston marketmen, however, that he has had as many as twenty from the 'Vineyard' in a single season. He also says that they average nearly a pound less in weight than western specimens, and on this account do not sell as readily. The bird is not found on the neighboring island of Naushon, despite statements by recent writers to that effect, nor is there any good evidence that it ever occurred there. There is also no reason to believe that the stock on Martha's Vineyard has been vitiated by the introduction of western birds. It is simply the last remnant of a once more or less widely-distributed race, preserved in this limited area partly by accident, partly by care. According to the best testimony available, the colony is in no present danger of extinction.

PRELIMINARY NOTES ON SOME BIRDS OBTAINED IN ARIZONA BY MR. F. STEPHENS IN 1884.

BY WILLIAM BREWSTER.

MR. F. STEPHENS has kindly allowed me to examine and report on some birds selected from a large collection made by him in Arizona in 1884. As the opportunity comes too late to admit of more than a brief announcement in this number of 'The Auk,' I give only the more important results, reserving the remainder for a future occasion.

1. **Turdus ustulatus** *Nutt.* RUSSET-BACKED THRUSH.— In my paper on the collection made by Mr. Stephens in 1881 I added* this Thrush to the fauna of Arizona with some hesitation, the single specimen taken having been merely identified in the field, without comparison, and shortly afterwards lost. This record is now satisfactorily corroborated, however, by a second example, unmistakably *ustulatus*, taken at Camp Lowell, May 21, 1884.

2. **Sialia sialis azurea** *Baird.* MEXICAN BLUEBIRD. — Three Bluebirds obtained in the Santa Rita Mountains in June are doubtfully referable to this subspecies. One of the two males (No. 1855, F. S., June 18) has the blue above of that greenish shade said to be characteristic of *azurea*, but the other (No. 1856, F. S.), taken the same day, does not differ in this respect from *sialis*, the tint of the blue being precisely the same. Both are peculiar in having the under parts (excepting the usual dingy white space on the abdomen, crissum, and tail-coverts) nearly uniform pale brownish-orange, paler and yellower, in fact, than in the female of *sialis*, and with scarcely a tinge of the usual deep reddish-brown. This characteristic is not mentioned in descriptions of *azurea*, nor do I find it in any of the dozen or more Mexican and Gua, temalan examples before me. The Santa Rita female (No. 1897, F. S.- June 20) is still paler beneath, as well as browner above than the female of *sialis*. All these specimens differ further from *S. sialis* in having rather longer wings and tails, in this respect agreeing with *azurea*. In the event of their proving distinct from the latter, which seems probable, I propose for them the name *fulva*. Whether distinct or not, the bird is new to Arizona, no form of *Sialia sialis* having been previously reported from that Territory.

Measurements.— ♂, No. 1855, F. S.: Length, 6.40; extent, 12.90; wing, 4.01; tail, 2.83; culmen from nostril, .35. ♂ No. 1856, F. S.: Length, 7.10; extent, 12.50; wing, 4.00; tail, 2.85; culmen, .37. ♀ No. 1897, F. S.: Length, 6.60; extent, 11.90; wing, 3.90; tail, 2.73; culmen, .37.

3. **Cæligena clemenciæ** *Lesson.* BLUE-THROATED CAZIQUE. — An adult male of this fine Hummingbird, which, it is needless to say, is entirely new to our fauna, was taken by Mr. Stephens at Camp Lowell, May 14, 1884. Upon comparing it with three Mexican specimens (exact localities not recorded) in the collection of the Boston Society of Natural History, I find that it differs only in being of a darker, purer green above, and in having the ash-gray of the under parts unmixed with green except on the sides. The birds just mentioned have the upper parts of a bronzed or yellowish green, the feathers of the under parts everywhere (except on the throat) tipped with greenish. Elliot describes† the upper parts as 'bronzy-green' but says nothing about any greenish below.

Measurements.— ♂ No. 1460, F. S.: Length, 5.40; extent, 7.50; wing, 3.10; tail, 1.91; culmen from nostril, .88.

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* Bull. N. O. C., Vol. VII, No. 2, Apr., 1882, p. 68.

† Synopsis of the Trochilidæ, p. 30.

RECENT LITERATURE.

A Naturalist's Rambles about Home.*— Under this taking title Dr. Abbott has written a popular book—consisting in part of previously published essays—on natural history, detailing in a pleasant way his long-continued observations on the habits of the beasts, birds, reptiles, and fishes met with in his rambles in the immediate neighborhood of his home at Trenton, New Jersey. Nearly one-half of the book (pp. 96-249 and 451-475) relates to birds, which are treated in Chapters XII-XXVII, in addition to which an annotated list is given in the Appendix. As regards the birds, the author's remarks, aside from the List, relate in the main to comparatively few species, many others, however, being mentioned incidentally. The titles of the chapters are suggestive of the matter and method of treatment. Under 'Our Birds in General' are noted changes in the habits and distribution of certain species, as, for example, the Bluebird and Carolina Wren, which are regarded as now resident species, though believed to have been formerly migratory; the Summer Redbird and Mockingbird of late appear only as rare stragglers rather than as common summer residents, as was formerly their status; and other southern species are cited as of much more common occurrence in winter than they were twenty years ago. Under 'The Migration of Inland Birds' are discussed at some length various phenomena of migration, to which are added speculations regarding the cause of migration. 'A Short Study of Birds' Nests' gives detailed observations on the nesting of several species, as the Baltimore Oriole, Robin, etc., the subject being considered with reference to Mr. Wallace's well-known essay on the 'Philosophy of Birds' Nests,' whose views, Dr. Abbott finds, "to a certain extent, at least, ... will apply to our birds." A chapter is also devoted to 'The Songs of Birds,' and others to the following subjects: 'Chats and Wrens: a Summer's Study'; 'The Carolina Wren: a Year of its Life'; 'Do Swallows Hibernate?' Rose-breasted Grosbeaks'; 'Feeding Habits of Kingfishers'; 'The Saw-Whet and other Owls'; 'Notes on our Herons'; 'Notes on the Wood Duck,' etc. These chapters, and others with less explicit titles, abound with observations on various species of birds, interspersed quite freely with speculations as to the cause of observed or suspected changes of habits, etc. The chapter on the hibernation of Swallows attempts to account for the belief in hibernation, and to explain the 'testimony' that has come down to us regarding alleged instances of hibernation. The hibernation of Swallows the author believes to be merely 'a fancy'; but as regards our Chimney Swift, the case seems somewhat different, and the author confesses himself 'fairly staggered.' To this subject he contributes several suggestive facts, such as the finding of living Chimney Swifts in a stove-

*A Naturalist's Rambles about Home. By Charles C. Abbott. New York: D. Appleton and Company, 1, 3, and 5 Bond Street, 1884. 8vo. pp. 485.

funnel in December, and others, apparently but a short time dead, in a hollow sycamore in February.

The ornithologist will be surprised at many of the facts recorded in Dr. Abbott's book, and will feel inclined to think that New Jersey birds have ways of their own, particularly as regards times of migration. The Bank Swallow, for instance, is repeatedly said to be the earliest of all the Swallows to arrive in spring, and the last to disappear in autumn, the date of arrival being 'often as early as the 10th of March,' and that they depart late in October, or may remain longer, 'undaunted by the chill November fogs.' The experience of other observers is quite different, the Bank Swallow being almost universally reported as the latest to arrive of all the Swallows, and one of the earliest to leave in autumn. Dr. Abbott's dates for the spring arrival are a month earlier than those given for the latitude of Washington, and two months earlier than the dates usually given for their arrival in the Middle and Eastern States! Instead of being the earliest of the Swallows to arrive in spring, it is commonly preceded by a full month by the White-bellied Swallow,—at least this is the uniform testimony of all previous writers. There are many other marked discrepancies between the behavior of birds in New Jersey—particularly as regards migration—as reported by Dr. Abbott, and as observed in contiguous territory by others. New Jersey Owls seem also possessed of eccentricities, since in Dr. Abbott's chapter on 'A Secluded Corner,' we are regaled with an account of a family of Short-eared Owls observed "during a pleasant moonlight evening last *October*," the younger members of which are represented as still too young to be able to fly well or to provide for themselves. Strangely, too, for Short-eared Owls, their nest was '*in a tree*.' Short-eared Owls outside of New Jersey have the habit of nesting much earlier than this, usually in the Middle and Eastern States, from April to June; furthermore, their nesting place is on the ground, usually in marshes, and not in trees. But the Owls are not the only peculiar creatures which enter into this pleasing story, New Jersey frogs having also strange habits, since the 'racket made by the frogs,' on this beautiful *October* evening, did not wholly prevent Dr. Abbott's hearing the 'varied utterances' of the Owls. Even as a piece of natural history romance, 'A Secluded Corner' is far from a success, while as a piece of sober narrative, detailing facts of observation, as it purports to be, it is a most unfortunate composition,* since such interludes of

* In the desire not to do the author injustice, his attention was called to some of the eccentricities of New Jersey birds as narrated in his book, and since the above was written we have been favored with a brief reply, in which he says he has "found *Otus brachyotus* nesting in a capacious hollow of a tree—*not* a cooped up hole that would suit a little Screech (*S. asio*)." He also says "October should read *August*," and that Bank Swallow "should read White-bellied." It strikes us, however, that the substitition of August for October illy harmonizes with the context, while to substitute White-bellied Swallow for Bank Swallow results in an incongruity bordering upon absurdity, as may be readily seen by referring to p. 100, and especially by reading pp. 161-163, as well as other passages in the book.

reverie reflect unfavorbaly, not only on other parts of the book, but upon the general trustworthiness of the author's scientific writings. Even in natural history romance, probabilities should at least be kept in view. In other parts of the book there are passages which evince a surprising degree of ignorance on points well-known to many much less pretentious observers.

Throughout the work the author betrays a penchant for gratuitous and not particularly sagacious speculation, as witness repeated attempts to account for changes in habits when the author himself admits that he is not sure that the changes have in reality occurred. There is also a looseness of expression at times that ill-becomes a writer whose rambles are made habitually with note-book in hand, recording on the spot whatever seems worthy of note. The List, in the Appendix, of 219 species of birds is practically, the author tells us, a reproduction of Turnbull's list, "with annotations based upon the observations of the sixteen years which have elapsed since Dr. Turnbull wrote his work." He says his list "may be said to constitute the ornithic fauna of Mercer County." It is, however, disappointing as a faunal list; the annotations are unsatisfactorily meagre, in many cases merely quotations from Turnbull, and in many others are marred by more or less obvious misstatements.—J. A. A.

Seebohm's History of British Birds.*—This work, the prospectus states, is intended to form three royal octavo volumes, of about 600 pages each, and will be published in six parts, illustrated with between 60 and 70 colored plates. It is the author's intention to issue a part every six months. The illustrations, executed in chromo-lithography, are to include all the known eggs of British birds, and those of several species will now be figured for the first time. Four parts have already reached this country, the first three being dated 1883 and the fourth 1884. The typographical execution of the work is excellent, and the plates are entitled to high praise. The author's style is attractive, and his fitness for the undertaking being well-known, the work cannot prove otherwise than a most important addition to the literature of British ornithology. In respect to nomenclature and classification Mr. Seebohm is conservative to a degree aproaching eccentricity, but in respect to the general subject his views are liberal, philosophic, and progressive. As regards details of distribution, habits, etc., of the species treated, we are not in position to judge critically, but the work seems to carry the stamp of care and thoroughness. The illustrations have certainly rarely been equalled.

In an 'Introduction' of some twenty or more pages the author unfolds his plan and principles of work. He considers, very properly, that "the question of the development of species by evolution is one which lies at

* A History of British Birds, with colored Illustrations of their Eggs. By Henry Seebohm. London: Published for the author by R. H. Porter, 6 Tenterden Street, W., and Dulau & Co., Soho Square, W. Roy. 8vo. Vol. I, 1883, pp. xxiv + 613, pll. 20; Vol. II (Part 1, 1883, Part 2, 1884), pp. xxxiv + 600, pll. 22.

the foundation of all inquiries into the history of individual species; and when it is answered in the affirmative, the study of ornithology is found to possess a new interest, many obscure points become comparatively clear, and the old treatment of the subject requires modifying in various ways." "The acceptation of the hypothesis of evolution," he says, "implies the recognition of species in the process of formation"; and adds: "It is easy to find examples of species in every stage of development, from mere local races to well-defined sub-species." He discusses in this relation the interbreeding of birds, upon which he lays great stress as affording an explanation of intermediate forms. The influence of environment upon the evolution of species is thus to a large degree strangely ignored. As we have elsewhere said,* we cannot agree that interbreeding has anything like the importance in this connection that Mr. Seebohm assigns to it, or that it is by any means adequate to account satisfactorily, except in a small number of cases, for intermediate forms, many of which are so obviously due to environment. Neither can we quite agree that "in the tropical regions birds vary much less than they do in the arctic regions," or "that tropical species are well-defined," in comparison with those of other regions, but rather that variation within one given area as compared with another is dependent upon the relative diversity of the conditions of life in the one area as compared with the other, and in part to the varying degree of plasticity in different groups of birds.

As regards classification, Mr. Seebohm seems inclined to ignore all recent progress, because systematists have not yet come to an agreement in regard to all points, or even all important points, and so goes back to the "artificial sequence adopted by Cuvier, which has at least the practical value that it is well-known, and thus obviates to a large extent the trouble of reference to an index" (!). He accordingly begins with the Raptorial Birds, and on reaching the Singing Birds, places them all in a single 'family Passeridæ,' recognizing for British Birds eleven '*sub-families*,' which are the equivalents of the *families* usually recognized by modern writers.

In respect to the 'vexed question of nomenclature,' he has throughout his work "set the Rules of the British Association at defiance, being convinced that, so far as ornithology is concerned, they have done infinitely more harm than good." His panacea for the evil is the utter disregard of the law of priority, and the adoption of an '*auctorum plurimorum*' rule; that is, the selection of "the specific name which has been *most used* by previous writers." In respect to genera, he follows the Stricklandian Code with modifications, some of which are manifest improvements. For instance, it seems sound doctrine that "Whenever the name of a species has been selected for the name of a genus, the species whose name has been so adopted becomes of necessity the type of such genus."

For subspecies he adopts what may be termed a Seebohmian system of trinomials, first instituted by him in his British Museum Catalogue of the

* Ibis, 1883, pp. 226-228.

Turdidæ,* which, as developed in the above-named and in the present work, is open to the charge of being illogical and inconsistent with the author's platform of principles. In illustration we may cite his treatment of the Gyrfalcons. He says there are "*two species* of Jer-Falcons, very distinct from each other, and having well-defined geographical ranges, *but connected together by a series of intermediate forms in the intermediate localities.*" We are at a loss, however, to understand what is meant by *species*, in view of the two parts of the above quotation we have distinguished by italics. The heading here adopted is "*Falco gyrfalco* and *Falco candicans.* Brown Jer-Falcon and White Jer-Falcon." Under this the synonymy is grouped under four subheads, as follows: (1) *Falco gyrfalco*; Brown Jer-Falcon. (2) *Falco gyrfalco candicans;* Iceland Jer-Falcon. (3) *Falco candicans gyrfalco;* South Greenland Jer-Falcon. (4) *Falco candicans;* White Jer-Falcon. After detailing the various intermediate stages he says: "The selection of any one of these intermediate forms is purely arbitrary; and between the two extreme forms it is just as easy to make ten subspecies as two." His recognition of two *species* then (not *sub*species) within this group must be purely arbitrary and without reason, as he appears to admit, species seeming to rest on no different basis from subspecies! We believe, however, that Mr. Seebohm, in theory at least, stands on firmer ground than this, and that his paper on the subject of trinomial nomenclature, read at the meeting of British naturalists convened last July to consider this subject,† indicates that he has now reached better footing.

Mr. Seebohm here and there finds occasion to criticise the work of some of his fellow ornithologists, and the unsparing hand with which he sometimes belabors his unfortunate victim indicates that he is by no means lacking in what has been termed the courage of conviction; but he very cordially invites like treatment of his own mistakes. In his accounts of the species treated, he gives special attention to their geographical distribution, their relations to allied forms, and very full details of their life-histories, often incorporating therewith much wholly fresh material. Doubtless in some instances he takes a more comprehensive view of species than some would be inclined to allow, but doubtless not wider, in most cases, than his extended experience with the forms in question would seem to warrant.

As Mr. Seebohm says: "The real history of a bird is its *life*-history. The deepest interest attaches to every thing that reveals the little *mind*, however feebly it may be developed, which lies behind the feathers. The habits of the bird during the breeding season, at the two periods of migration, and in winter; its mode of flight and of progression on the ground, in the trees, or on the water; its song and its various call- and alarm-notes; its food and its means of procuring it at different seasons of the year; its migrations, the dates of arrival and departure, routes it chooses, and the winter quarters it selects; and, above all, every

* Cf. Bull. N. O. C., VIII, pp. 100-104.

† See Auk, I, pp. 342-346.

particular respecting its breeding, when it begins to build its nest, the materials it uses for the purpose, the number of eggs it lays, the variation in their color, size and shape,—all these particulars are the real history of a bird; and in the account of each species of British birds I endeavour to give as many of them as possible." The Introduction to Volume II contains a paper of 24 pages 'On the Protective Colour of Eggs,' by Mr. Henry Dixon, which will be noticed at length in some future number of 'The Auk.'

Mr. Seebohm's work abounds in passages which invite comment, but lack of space forbids a more extended notice.—J. A. A.

Ingersoll's 'Country Cousins.'* — This well-written work, intended to entertain and assist 'those who take delight in out-door studies,' consists of twenty-one articles, devoted to a variety of subjects, reprinted from the various periodicals in which they originally appeared. Birds come in for a fair share of notice, mainly in the chapters entitled 'A Wet Day with the Birds' (pp. 21-30), 'Birds of the Brookside' (pp. 39-48), and 'A Chat about Bob White' (pp. 175-181). The book as a whole is much better written, both as regards truthfulness and style, than popular works on natural history often are, the writer for the most part contenting himself with subjects with which he is personally familiar, and in which he is especially interested. He therefore writes intelligently, largely from original observation, and in the main correctly, but there are here and there lapses which a little more care would have saved. This is not often the case in the ornithological portions of the work, but a pleasantly written account, several pages in length, of the Long-billed Water Thrush (*Siurus motacilla*) is marred at its close by the statement, "This is a northern bird." The Spotted Sandpiper, the three species of *Siuri*, and the Quail (*Ortyx virginianus*) are the species accorded most attention.—J. A. A.

Langille's 'Our Birds in their Haunts: A Popular Treatise on the Birds of Eastern North America.'† — Several months have now elapsed since the appearance of this long-promised book, on which the author has been at work, he tells us, for the past twelve years. It is a compact volume of 624 pages, sparsely illustrated by woodcuts, most of which are borrowed from the second edition of Coues's 'Key.' Its scope will appear from the opening sentence of the preface: "The first aim of this work is to render as popular and attractive as possible, as well as to bring within a small compass, the sum total of the bird-life of Eastern North America." Had

* Country Cousins: Short Studies in the Natural History of the United States. By Ernest Ingersoll, Author of 'Friends Worth Knowing,' 'Knocking Round the Rockies,' The Ice Queen,' etc. Illustrated. New York: Harper & Brothers, Franklin Square, 1884. 8vo. pp. 252. Plates, and woodcuts in the text.

† Our Birds in their Haunts: a Popular Treatise on the Birds of Eastern North America. By. Rev. J. Hibbert Langille, M. A. Boston: S. E. Cassino & Company 1884. 8vo. pp. 624, woodcuts in the text.

the title of the work been restricted to 'Our Birds in their Haunts', and had the author contented himself with biographical sketches of the birds with which he was personally familiar, he would have escaped numerous embarassments, and his book would have had a charm which has been largely forfeited by reason of its more pretentious scope.

A third of the preface, and occasional paragraphs throughout the volume, are devoted to the author's notions of the religious aspects of ornithology, and he often works into the narrative what he is pleased to consider evidences of a 'Creator', or of 'design', in the structure or habits of birds. Without so much as a show of either logic or modesty, he attacks the theory of migration which was proposed, independently, by Wallace of England and Palmén of Finland, and bluntly announces his conclusion that the phenomena of migration are "caused by the laws of instinct, superintended by an Infinite Intelligence." Seemingly ignorant of the laws of hereditary habit, he delights in calling upon the supernatural for the explanation of very simple facts. However gratifying this may be to his brother Divines, it is certainly out of place in 'A Popular Treatise on the Birds of Eastern North America.'

In the preface the author says that he has incorporated in his book "a good deal of direct information from Hudson's Bay, by means of an excellent correspondent. This last feature of original investigation should specially commend the work to the scientist." The book was read from beginning to end, and every record from the above source was carefully noted. The task completed, just a dozen species were found, and every one of these has been known from Hudson's Bay for at least thirty-five years, and several for a much longer period! From a clerical standpoint, the mention of a dozen birds from a given locality where they have been known for nearly half a century may be regarded as "a good deal of direct information," but the reviewer, who looks at the matter from an ornithological standpoint, is hardly prepared to admit, in consideration of the total absence of a new fact of any kind, that "this last feature of original investigation should specially commend the work to the scientist."

The arrangement of the subject matter is novel and not unattractive. The Chapters are entitled: 'Hoar Frost'; 'Snowed In'; 'Open Winter'; 'Below Zero'; 'A January Thaw'; 'Voices of Spring'; 'A Bluff and the Cat-tails'; 'Along the Creek'; 'Early April and the Phœbe'; 'Later in April'; 'Late in April'; 'The Third of May'; 'The Swamp, The Field, and The Lake'; 'The Tenth and Eleventh of May'; 'Peewees and the Hooded Warbler'; 'Birds around the House'; 'The First Days of June'; 'Georgian Bay'; 'Tenting on the Niagara'; 'Bird-life in Nova Scotia'; 'New Jersey Coast and the Osprey'; 'Autumnal Days'; 'Reminiscences'; 'Gleanings'. Under each of these headings a number of species are disposed of. There is a fair index, but no table of contents.

The technical descriptions are woven into the narrative (which is always a mistake) and in most cases are insufficient to admit of positive identification except in strongly marked species. The most striking defect in the book—a defect which appears with provoking frequency, and

might so easily have been remedied that it is inexcusable—is the absence of authorities for the great majority of non-original statements. A still more serious omission is the lack of precise data concerning rare or unusual occurrences which have fallen under the author's notice. Quite a number of inaccuracies have crept into the book, doubtless through want of more extended observation or reading. Their character may be seen by the following: The White-bellied Nuthatch is "at all times strictly insectivorous." The nest of the Chipping Sparrow "is never very near the ground." "Concerning all Woodpeckers, an account of the habits of one comes very near being an account of them all"; and again, the Red-headed Woodpecker, "in most respects, is so like other Woodpeckers in habit as to need but little special history in a work like this"! The Hudsonian Tit is "in all repects similar in habit" to the Black-capped Chickadee!!

After enumerating several grievous charges against the Crow he goes on to say: "But, as in the case of many other transgressors, there are some weighty things to be said in his favor. In the same field from which he steals the corn, he destroys many noxious worms and insects, especially cutworms; not to speak of the snakes, moles, and mice." Now everybody knows, or *ought* to know, that snakes rank among the best friends of the farmer; and as to moles, they certainly cannot be regarded as enemies. Moreover, it might be a difficult task to prove that the Crow does kill moles. The same remark applies to the Short-eared Owl, which, according to our author, "feeds especially on mice and moles."

The statement that the European Crested Grebe (*Podiceps cristatus*) "is common in North America" is a striking instance of the unfortunate manner in which blunders are perpetuated for many years (in this case seven) after they have been pointed out and corrected.

The Redpolls are confused under a single species (*A. linaria*), and similar errors occur in other places. There are some strange incongruities in the treatment of subspecies. One is given great prominence—the subject of a special article—while the existence of others is not even hinted at. It is a little remarkable that an author who has been for twelve years engaged in the preparation of a book on birds, and who has spent much time in the field, should not have heard the song of so common a bird as the Ruby-crowned Kinglet (*Regulus calendula*) till the end of the eleventh year (May 1883). It is also surprising, and not a little discouraging, to find doubt expressed concerning the method of so well-understood a performance as the drumming of the Ruffed Grouse.

Typographical errors are rare, though the statement that the Barn Swallow is *four* and a half inches long may probably be classed under this head. At the bottom of page 487 Wood *Thrush* is printed where Wood *Duck* is clearly meant.

Having now done duty as a critic, there remains the far more agreeable task of pointing out some of the many really valuable and praiseworthy features of the book. The reader is soon impressed with its strongest recommendation, which is the manifest trustworthiness of the original matter. The author is a good observer, and his biographies are, in the

main, accurate and well expressed. He evidently has a keen ear, and in putting bird music on paper has been more successful than many of his predecessors. He knows how to use both gun and glass, and has the good sense never to trust the latter in matters of identification.

His careful descriptions of the physical features of several localities where much of his field work has been done contribute largely to the interest and importance of the biographies that follow. The accounts of the Ducks that frequent Niagara River and Lake Ontario contain much that is new; and attention is directed to the little-known habit of the Canada Goose of foraging in wheat-fields.

Concerning the breeding of the White-bellied Swallow on the Mud Islands in Yarmouth County, Nova Scotia, he says: "I saw the nests of this species on the ground under flat stones, and in holes in the ground. They were elegantly lined with the feathers of the Herring Gull and of the Eider Duck, the feathers being so laid that the tips curved upward and nearly concealed the eggs."

His personal observations on the Horned Lark, the Butcher Bird, and many other species are full of interest and are written in a free and pleasing style. He has heard the rich night-song of the Ovenbird, and his heart has been stirred by the unspeakable melody of the Hermit Thrush. Indeed, he is a real lover of nature, and the reviewer, though forced to mention certain errors and omissions, is still in deep sympathy with much of the author's narrative.— C. H. M.

Stejneger on the Wrens of the Subgenus Anorthura.*—A synopsis of the various forms is given, with their synonymy. Six species and two subspecies are recognized, as follows: (1) *Troglodytes borealis*, (2) *T. parvulus*, (2*a*) *T. parvulus bergensis* (subsp. nov.), (3) *T. pallescens* (sp. nov.), (4) *T. alascensis*, (5) *T. hiemalis*, (5*a*) *T. hiemalis pacificus*, (6) *T. fumigatus*. The paper has special reference to Mr. Seebohm's treatment of the same group in his 'History of British Birds,' by whom all the known forms of *Anorthura* are degraded to subspecies of the European *T. parvulus*.—J. A. A.

Stejneger on the Ptarmigans of the Group Attagen.†—This paper embodies the results of Dr. Stejneger's extended and careful investigation of this difficult group of birds— more difficult than almost any other, owing to their nearly continuous moult, and to the scarcity of material collected at corresponding seasons of the year, and properly authenticated as to date of collection. The conclusions here reached are to some extent tentative, and the author appeals for further aid in the way of material. The species and subspecies recognized are as follows: (1) *Lagopus muta*,

* Ueber einige Formen der Untergattung Anorthura. By Leonhard Stejneger. Zeitschrift für die gesammte Ornithologie, I, pp. 7-14, Feb., 1884.

† A Brief Review of the Lagopodes belonging to the Group Attagen Kaup. By Leonhard Stejneger. Zeitsch. für die gesammte Ornithologie, I, pp. 86-92, pl. v.

Scandinavia; (1*a*) *L. muta vulgaris*, the Alps of Southern Europe, the Pyranees, and probably Scotland; (2) *L. ridgwayi*, Commander Islands; (3) *L. hyperborea*, Spitzbergen; (4) *L. islandorum*, Iceland; (5) *L. rupestris*, Arctic America and the Siberian tundras; (5*a*) *L. rupestris reinhardti*, Greenland; (5*b*) *L. rupestris nelsoni*, Unalashka; (5*c*) *L. rupestris atkhensis*, Atkha (Alutian Islands); (6) *L. leucura*, Rocky and Cascade Mountains. The synonymy and distinctive characters of each form are briefly given. The paper is here and there marred by typographical errors, for which the author is doubtless not responsible.—J. A. A.

Stejneger on New Species of Birds from Kamtschatka and the Commander Islands.*—These are: (1) *Pica camtschatica*, (2) *Corvus grebnitzskii*, (3) *Alauda blakistoni*, (4) *Dendrocopos immaculatus*, (5) *Lagopus ridgwayi*—all closely allied to species of Siberia or Japan.

Stejneger on Recent Ornithological Publications in the United States.†—This is a carefully annotated list of all the more important works and papers published in the United States between January 1, 1883, and May 1, 1884, and numbers about 65 titles. The remarks about each are sufficient to indicate the general scope and character of the papers and works mentioned.—J. A. A.

Merriam on a Bird New to the Bermudas, etc.‡—The Song Sparrow (*Melospiza fasciata*) is added to the species of birds previously recorded from these islands, and there are observations on three other species met with there, namely, *Pyranga rubra*, *Pelionetta perspicillata*, and *Cymochorea leucorrhoa*.—J. A. A.

Shufeldt on the Osteology of Ceryle alcyon.§—This is another of Dr. Shufeldt's carefully prepared osteological memoirs, and is devoted, as the title indicates, to the osteology of our common Belted Kingfisher. The osteological characters of the bird are fully detailed, and its structure compared with that of allied forms. The paper is illustrated by an excellent plate, and figures in the text of the skull of *Alcedo ispida*.—J. A. A.

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* Diagnoses of New Species of Birds from Kamtschatka and the Commander Islands. By Leonhard Stejneger. Proc. Biolog. Soc. of Washington, II, pp. 97-98. (Separates issued April 10, 1884.)

† Die wichtigsten ornithologischen Publicationen aus den Vereinigten Staaten vom 1. Januar 1883 bis 1. Mai 1884. Von Leonhard Stejneger. Zeitsch. für die gesammte Ornithologie, I, pp, 179-189, 1884.

‡ On a Bird new to the Bermudas, with notes upon several other species of rare or accidental occurrence in these Islands. By Clinton Hart Merriam, M.D. Bull. No. 25, U. S. National Museum, pp. 283, 284, 1884.

§ Osteology of Ceryle alcyon. By R. W. Shufeldt, Captain Med. Corps, U. S. Army [etc.]. Journ. of Anat. and Physiol., XVIII, pp. 279-294, pl. xiv.

Shufeldt on the Avian Patella.*—An interesting paper, giving clear descriptions and good figures of the knee-pan in *Aptenodytes, Corvus, Mergus, Sula, Podiceps, Colymbus, Fulmarus, Phalacrocorax, and Hesperornis.* The author adheres to the second view, that the patella does not represent a 'detached olecranon,' and proves it by showing that the sesamoid may coexist, as it does in *Podiceps*, with a very large cnemial process of the tibia, the latter being the true antitype of the olecranon.

Nothing advances the progress of scientific ornithology more speedily or more effectually than the anatomical studies of such men as Macgillivray, Huxley, Garrod, Forbes, and Shufeldt.—E. C.

Minor Ornithological Publications.—The 'Ornithologist and Oölogist,' Volume VIII,† contains the following (Nos. 669-771) :—

669. *Breeding Habits of the Carolina and American Eared Grebes.—Podilymbus podiceps and Dytes nigricollis californicus.* By B. F. Goss. *Ornithologist and Oölogist*, Vol. VIII, pp. 1, 2.

670. *Explanation.* By J. G. Cooper. With a note by the Editor. *Ibid.*, p. 2.—On the number of eggs laid by Owls.

671. *Horned Grebe* [*Dytes auritus*] *in Conn*[*ecticut*]. By Chas. A. Thompson. *Ibid.*, p. 3.

672. *Rare Specimens at Bangor, Me.* By E. S. Bowler. *Ibid.*, p. 3.—Hawk Owl, Rough-legged Hawks, Snowy Owls, etc.

673. *Fishing and Catching Ducks.* By Wm. P. Tarrant. *Ibid.*, p. 3.—Ducks (species not stated) caught on set-lines, in 125 and 200 feet of water in Lake Michigan.

674. *White Heron* (*Herodias alba egretta*). By Jno. H. Sage. *Ibid.*, p. 4.—Shot at Saybrook, Conn., Aug. 11, 1882. (Previously recorded by same writer in O. and O., VII, p. 189. See *anteà*, No. 443.)

675. *Field Glass* [*Ornithology*]. By G. R. C. *Ibid.*, pp. 5, 6. (See above, No. 412, in Bull. N. O. C., VIII, 236.)

676. *Long-billed Marsh Wren.* By B. B. Haines. *Ibid.*, pp. 6, 7.—Nesting habits as observed in New Jersey.

677. *Crossbills* [*in Tennessee*]. By G. S. Smith. *Ibid.*, p. 7.—Relates to the instances previously recorded by same writer in Bull. N. O. C., VII, 56.

678. *Virginia Rail.* Editorial. *Ibid.*, p. 7.—Harry F. Haines collected 1,000 eggs of this species in one season on the salt meadows of Elizabeth, N. J.

679. *Notes from Hartford*, [*Conn.*]. By Harry T. Gates. *Ibid.*, p. 8.—Notes on various winter birds.

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* Concerning some of the Forms assumed by the Patella in Birds. Proc. U. S. Nat. Mus. Vol. vii, 1884, pp. 324-331. figg. 1-7.

† The 'Ornithologist and Oölogist' will not be hereafter indexed, as heretofore, in the list of 'Minor Ornithological Publications,' owing in part to pressure on our space, but mainly from the fact that it has become a publication of so much importance that none of our readers should fail to have it in their libraries.

680 *Eggs in a Set.* By Snowdon Howland. *Ibid.*, p. 8.—Large clutches of Catbird, Robin, etc., reported, and the nesting in odd places by other species.

681. *Notes from Galesburg, Ill.* By C. W. Strumberg. *Ibid.*, p. 8.—Interesting notes on the nesting of several species.

682. *Oological and Ornithological.* By A. H. Mundt. *Ibid.*, pp. 9, 10.—Notes on the nesting of about 20 species at Fairburg, Ill.

683. *Cardinal Grosbeak.* By Edgar A. Small. *Ibid.*, pp. 10, 11.—Its nesting habits at Hagerstown, Md.

684. *Blue Yellow-backed Warbler's Nest.* Editorial. *Ibid.*, pp. 12, 13.

685. *Eggs in a Set.* By M. Day Murphey, Jr. *Ibid.*, p. 13.—Large clutches of several species reported.

686. *Corrections.* By Robert Ridgway. *Ibid.*, p. 13.—Of D. D. Stone's 'Notes from Colorado,' in O. and O., VII, p. 192. (See *anteà*, No. 446.)

687. *Bobolinks.* Editorial. *Ibid.*, p. 14.—On their scarcity in Connecticut, and their wholesale destruction by gunners along the Delaware and southward in the fall. 1,000,000 Rails and Bobolinks killed near the mouth of the Delaware "during the month of September alone."

688. *Savannah Sparrow.* By J. M. Howey. *Ibid.*, p. 16.—"Breeds commonly throughout Western New York."

689. *Rare Birds.* By Chas. E. Bellows. *Ibid.*, p. 16.—"Common Cormorant (*Phalacocorax carbo*)" taken at Bridgton, N. J.

690. *Among the Buteos.* By J. M. W[hipple]. *Ibid.*, pp. 17, 18.—Notes on the nesting of various species near Norwich, Conn., during the season of 1882. 104 eggs taken!

691. *Notes from Nebraska.* By H. A. Kline. *Ibid.*, pp. 18, 19.—On the nesting of several species of Hawks and Owls.

692. *The Prothonotary Warbler.* By D. E. Lantz. *Ibid.*, pp. 19, 20.—Its nesting habits at Manhattan, Kan.

693. *Clark on "Gull Island."* By John N. Clark. *Ibid.*, p. 21, with cut (of a nesting Roseate Tern, swallowing a herring of nearly its own size).

694. *Ipswich Sparrow.* By Moses B. Griffing. *Ibid.*, p. 22.—Taken on Shelter Island, N. Y., Nov. 21, 1882.

695. *Capt. Chas. E. Bendire, U. S. A.* Editorial. *Ibid.*, pp. 22, 23.—Extracts from his letter of Dec. 29, 1882, recounting the results of his natural history work the previous season, and announcing that 'it has been whispered' that he is to complete the 'North American Oölogy' left unfinished by the late Dr. T. M. Brewer.

697. *Night Herons Breeding on the Marsh.* By Delos Hatch. *Ibid.*, p. 23.—Nesting in the grass and rushes of a marsh in Wisconsin.

698. *Mississippi Valley Migration.* By W. W. Cooke. *Ibid.*, pp. 25-27, 33, 34, 41-42, 49-53, 65-67, 73-75, 81-83, 89-91.—Winter birds of St. Louis, Mo., and Manhattan, Kan., compared (pp. 25-27); spring migration of the Robin (pp. 33, 34); notes from various stations on winter

birds (pp. 41, 42); spring migration of Ducks and Geese, Blackbirds and Bluebirds (pp. 49-53); Purple Martin, Brown Thrush and Black Snowbird (pp. 65-67); Warblers (pp. 73-75, 81-83); Olive-backed Thrush, Catbird, Kinglets, Brown Creeper, House Wren, Red-eyed Vireo, White-bellied Swallow, and Scarlet Tanager (pp. 89-91).

699. *Notes from Bloomington, Ind.* By B. W. Everman. *Ibid.*, pp. 27, 28.— Notes on the Mockingbird, Summer Redbird, Bobolink, and Carolina Wren. White-winged and Red Crossbills reported as taken for the first time in the State.

700. *Odd Bird Songs.* By S. Frank Aaron. *Ibid.*, p. 28.— Relates to Golden-crowned Thrush, Black-throated Green Warbler, and Maryland Yellow-throat.

701. *The Gannet, Tula* [*sic*] *bassana, or Solan Goose.* By J. T. T. Reed. *Ibid.*, p. 30.— Its habits, etc., as observed in England.

702. *American Redstart* (*Setophaga ruticilla*). By Dr. H. A. Atkins. *Ibid.*, p. 31.— Dates of its arrival at Locke, Michigan, for twenty-six years.

703. *White-bellied Nuthatch.* By L. R. Rich. *Ibid.*, p. 31.— Its nest and eggs, taken at Saratoga, N. Y., described.

704. *Notes from Connecticut.* By C. M. Jones. *Ibid.*, p. 32.— A pair of Mallards shot at Eastford, Conn., Oct. 30, 1882.

705. *Phœbe Birds in Winter.* By Edgar A. Small. *Ibid.*, p. 32.— At Hagerstown, Md.

706. *Yellow Rump Warbler.* By A. Hall. *Ibid.*, p. 32.— Shot Jan. 13, 1883, in Northern Ohio.

707. *Oological.* By Snowdon Howland. *Ibid.*, p. 35.— Chiefly relates to the eggs of Clapper, Virginia, and Sora Rails.

708. *Golden Eagle's Nest and Eggs.* By Will Stembeck. *Ibid.*, p. 36.— Locality, Hollister, Cal.

709. *Ash-throated Flycatcher* (*Myiarchus cinerascens* [*sic*]. By W. O. Emerson. *Ibid.*, p. 36.— Its nesting habits, at Haywards, Cal.

710. *The Blue-winged Yellow Warbler.* By J. N. Clark. *Ibid.*, pp. 37, 38.— Its nesting in Southern Connecticut, where "it is quite common in the migrations."

711. *The Clapper Rail.* By B. B. *Ibid.*, p. 40.— Its abundance, habits, etc., in the marshes of Elizabeth, N. J.

712. *Brief Ornithological Notes from Newfoundland.* By C. Hart Merriam, M. D. *Ibid.*, p. 43.— On birds seen on a sealing cruise, and about St. John's, in March and April, 1883.

713. *Ruby-crowned Kinglet.* By Fred. T. Jencks. *Ibid.*, p. 45.— Only males found to have crests.

714. *An April Walk.* By J. M. W[hipple]. *Ibid.*, pp. 44, 45.— Desultory notes on birds observed April 10, 1883, at Norwich, Conn.

715. *Cardinal Grosbeak.* By W. T. Warwick. *Ibid.*, p. 46.— On its time of nesting at Washington, Pa.

716. *Crows Eating Herons' Eggs.* By A. G. Van Aken. *Ibid.*, p. 46.

717. *Lesser Red Poll* (*Ægiothus linaria*). By C. O. Tracy. *Ibid.*, p. 47.—"Nest and eggs of this species" found "the last of March, 1878," at Taftsville, Vt.! The species was doubtless the Pine Finch (*Chrysomitris pinus*).

718. *Stormy Petrel* (*Thalassidroma pelagica*). By O. B. Deane. *Ibid.*, p. 47.—Shot at Springfield, Mass., "a few years ago." (The species was evidently a 'Stormy' Petrel, but probably not *T. pelagica*.)

719. *Ipswich Sparrow*. By Wm. Dutcher. *Ibid.*, p. 48.—Eight, out of ten seen, taken at Great South Beach, L. I., in January and February, 1883.

720. *Plain English*. By Montague Chamberlain. *Ibid.*, pp. 53, 54.—Ostensibly a plea for plain, untechnical language in works on natural history.

721. *Bewick's Wren*. By Howard Jones. *Ibid.*, p. 54.—Description of its nest and eggs, found at Circleville, Ohio.

722. *Sharp-shinned Hawk. Red-headed Woodpecker. House Sparrow*. By W. B. Fonda. *Ibid.*, p. 55.—The Hawk nesting in a Woodpecker's hole.

723. *Birds in Confinement*. By Annie Trumbull Slosson. *Ibid.*, p. 55.—An albinistic Catbird, a Myrtle Bird, and Chewink.

724. *Curious Nesting Place*. Editorial. *Ibid.*, p. 56.—House Sparrows nesting inside of a depot gong.

725. *An Unrecorded Habit of the Red-Headed Woodpecker*. By Howard Jones. *Ibid.*, p. 56.—Robbing the nests of Cliff Swallows and sucking Hen's eggs!

726. *Ruby-crowned Kinglet*. By Wm. Brewster. *Ibid.*, p. 56.—Females, as a rule, lack the scarlet crown-patch.

727. *A Reply to Dr. Coues*. By Montague Chamberlain. *Ibid.*, pp. 57-59. (From the Quebec 'Morning Chronicle.')—Relates mainly to questions of nomenclature.

728. *Short-eared Owl*. Editorial. *Ibid.*, pp. 60, 61.—On its habits and distribution, with quotations from authors and interesting new matter furnished by H. A. Kline and G. A. McCallum.

729. *Long-eared Owl*. By F. H. C[arpenter]. *Ibid.*, pp. 61, 62.—Its nesting habits and eggs.

730. *Canada Jay*. By F. H. C[arpenter]. *Ibid.*, p. 62.—Description of nests and eggs found in Northwestern Maine, March 16 and 20, 1881.

731. *Woodcock and Turtle*. Editorial. *Ibid.*, p. 63.—The former caught by the latter.

732. *The Black-headed Grosbeak* (*Zamelodia melanocephala*). By C. W. Beckham. *Ibid.*, p. 63.—A male found incubating.

733. *Least Bittern*. By Snowdon Howland. *Ibid.*, p. 64.—An instance of peculiar behavior.

734. *Greater Yellow-legs*. By Thos. Morgan. *Ibid.*, p. 67.—Nest of *Totanus melanoleucus* found at Somerville, N. J. (!)

735. *Great-horned Owls*. By F. H. C[arpenter]. *Ibid.*, p. 68.—Eggs found in one nest for eleven successive years; the twelfth year it was found that the nesting-tree had been destroyed.

736. *Red Crossbills.* By A. H. Helme. *Ibid.*, p. 68.—Found breeding, and nest and eggs secured, April 10, 1883, near Miller's Place, L. I., N. Y.

737. *Barred Owl.* By F. H. C[arpenter]. *Ibid.*, pp. 69, 70.—Its nesting habits, as observed at Rehoboth, Mass.

738. *Notes from California.* By W. O. Emerson. *Ibid.*, p. 70.—Brief references to the nesting of various species.

739. *Flying Squirrels and Their Work.* Editorial. *Ibid.*, p. 70.—Suspected of destroying birds' eggs.

740. *Notes from Greenfield, Mass.* By S. W. Comstock.—Nesting of *Dendræca blackburniæ* and *Sitta carolinensis*, etc.

741. *Arrivals.* By C. O. Tracy. *Ibid.*, p. 71.—Among early spring arrivals, at Taftsville, Vt., the Shore Lark is mentioned as seen for the first time at this locality.

742. *Rose-breasted Grosbeak.* By Chas. Edw. Prior. *Ibid.*, p. 71.

743. *Late Nesting.* By G. S. Agersborg. *Ibid.*, p. 71.—Marsh Hawk and Mallard with fresh eggs, July 4, at Vermillion, D. T.

744. *Swamp Sparrow.* By C. H. Wilder. *Ibid.*, p. 71.—A previous record of its breeding should be corrected to read 'Song Sparrow.'

745. *Pigeon Hawk. Sparrow Hawk.* By Charles D. Gibson. *Ibid.*, p. 72.—Both (!) species found breeding at Brandywine Springs, Del.

746. *Alex. Wilson.* Editorial. *Ibid.*, p. 76.—Portrait of Wilson, with an account of the same, etc.

747. *Boat-Tailed Grackle.* By Edgar A. Small. *Ibid.*, p. 76.—Breeds in suitable localities as far north, along the Chesapeake Bay, as Kent Co., Md.

748. *Hairy Woodpecker.* (*Picus villosus.*) By J. N. Clark. *Ibid.*, pp. 77, 78.—Nesting near Saybrook, Conn.

749. *Curious Nesting* [*of a Blue Jay*]. *Blue Jays Tame.* By J. N. Clark. *Ibid.*, p. 78.

750. *Nesting Notes from Connecticut.* By J. L. Goff. *Ibid.*, p. 78.

751. *Notes from San Jose, Cal.* By A. L. Parkhurst. *Ibid.*, p. 79.—On nesting of Black-headed Grosbeak, *Elanus glaucus*, *Phalænoptilus nuttalli*, etc.

752. *Audubon.* By W. S. J. *Ibid.*, p. 79.—Description of Audubon's mill at Henderson, Ky.

753. *Winter Birds* [*at Saybrook, Conn.*]. By John H. Sage. *Ibid.*, p. 80.

754. *White Herons.* By W. T. Warrick. *Ibid.*, p. 80.—Seven shot, and many more seen, at Washington, Pa.

755. *Pigeon Hawks.* By Charles D. Gibson. *Ibid.*, p. 80.—Affirming the correctness of his previous note (see above, No. 745), on the breeding of this species in Delaware, where, he adds, "the Pigeon Hawk is resident."

756. *Ruby-Crowned Kinglet.* By D. D. Stone. *Ibid.*, pp. 83, 84.—Its nest, eggs, and breeding habits as observed in Colorado.

757. *Short-eared Owl.* By F. H. Carpenter. *Ibid.*, p. 84.—Its breeding habits at Rehoboth, Mass.

758. *Clarke's Crow in Southern Dakota.* By G. Ayersborg [=Agersborg]. *Ibid.*, p. 84.

759. *The Hawks of '83.* By J. M. W[hipple]. *Ibid.*, p. 85.

760. *Downy Woodpecker.* By John M. Howey. *Ibid.*, p. 85.

761. *Baltimore Oriole [as a Cage Bird].* By W. L. Scott. *Ibid.*, p. 86.

762. [*Nest of the*] *Least Bittern.* By Charles H. Neff. *Ibid.*, p. 86.

763. "*Monkey-Faced Owls.*" By W. P. Tarrant. *Ibid.*, p. 87, with cut.—Obviously the Barn Owl.

764. *Interesting Notes.* By Charles D. Gibson. *Ibid.*, pp. 87, 88.

765. *A Surprised Blue Jay.* By S. H. L. *Ibid.*, p. 88. (From the Germantown 'Telegraph.')

766. *Change of Ownership.* Editorial. *Ibid.*, p. 92.—Valedictory, and announcement of the transfer of the 'O. and O.' to Mr. Frank B. Webster of Pawtucket, R. I.

767. *Notes from Manhattan, Kan.* By D. E. Lantz. *Ibid.*, p. 92.—On the nesting of a few species.

768. *Screech Owls Breeding in Confinement.* By F. H. Carpenter. *Ibid.*, pp. 93, 94.

769. *Snow Buntings and Pileated Woodpeckers.* By Charles D. Gibson. *Ibid.*, p. 94.

770. *Bell's Vireo—(Vireo belli.* By D. E. Lantz. *Ibid.*, pp. 94, 95.

771. *Red-headed Woodpeckers.* By Moses B. Griffing. *Ibid.*, p. 95.—At Shelter Island, N. Y.

772. *Yellow-breasted Chat.* By F. H. Carpenter. *Ibid.*, p. 96.—Breeding at Rehoboth, Mass.—J. A. A.

Publications Received. — **Barrows**, W. B. Birds of the Lower Uruguay. (Bull. N. O. C., VIII, and Auk, I.)

Cory, C. B. The Birds of Haiti and San Domingo, Part III, 1884, 4to, pp. 112-160, pll. 6.

Garman, S. On the Use of Polynomials as Names in Zoölogy. (Proc. Boston Soc. Nat. Hist., 1884, pp. 7 [repaged].)

Gurney, J. H., Jr. (1) Catalogue of the Birds of Norfolk. London, 1884. 8vo. pp. 47. (2) On the 'Hairy' Variety of the Moorhen (Gallinula chloropus). (Trans. Norfolk and Norwich Naturalists' Soc., III, pp. 581-587.) (3) On the Occurrence of a Flock of the Arctic Blue-throated Warbler (Erithacus suecica) in Norfolk. (Ibid., pp. 597-601.)

Ingersoll, Ernest. Country Cousins: Short Studies in the Natural History of the United States. New York, 1884, 8vo. pp. 252. Illustrated.

Sharpe, R. Bowdler. (1) Notes on Timeliidæ. (Notes from the Leyden Mus., VI, pp. 167-178.) (2) On an Apparently Undescribed Genus [Orthnocichla] of Wrens from Timor. (Ibid., pp. 179, 180.)

Shufeldt, R. W. Osteology of Numenius longirostris, with Notes upon the Skeletons of other American Limicolæ. (Journ. Anat. and Phys., XIX, pp. 51-82, pll. iv, v.

American Naturalist, Nov., Dec., 1884, Jan., 1885.
Bulletin Essex Institute, XV, Nos. 7-9, XVI, Nos. 4-6.
Canadian Science Monthly, Sept., 1883.
Journal Cincinnati Soc. Nat. Hist., VII, Nos. 1-3.
Naturalist, The, A Journ. of Nat. Hist. for the North of England, Nos. 112-113, Nov., Dec., 1884.
Ornithologist and Oölogist, Aug.-Dec., 1884.
Proceedings Acad. Nat. Sci. Philadelphia, 1884, Pt. II.
Random Notes on Natural History, I, Nos. 10-12, 1884.
Science Record, II, Nos. 11, 12.
Zeitschrift für die gesammte Ornithologie, I, Heft 3.
Zoölogist, Oct., Nov., Dec., 1884.

GENERAL NOTES.

Albino Robins (*Turdus migratorius*).—My friend James M. LeMoine, Esq., informs me that he has just added to his fine collection at Spencer Grange, Quebec, a pure white Robin, said to be the first seen in that vicinity. I have lately examined an albino of this species recently captured near St. John. The only colored feathers to be seen on the bird are three single ones forming spots on the breast.—MONTAGUE CHAMBERLAIN, *St. John, N. B.*

Nest and Eggs of the Golden-winged Warbler (*Helminthophila chrysoptera*).—This bird selects a semi-swampy situation, overgrown with bushes, in which to nest. It commences to build the last of May or first of June. The nest is placed on the ground, and is supported laterally by three or four bushes situated from four to five inches apart. It is composed externally of dry leaves placed edgewise, and well lined with fine bark fibres, interspersed with a few coarse hairs. The nest when finished measures, inside, three and one-half to four inches in depth, and one and one half to two inches in diameter; the sides are nearly parallel, only slightly contracted above. It is well concealed by the overhanging bushes and leaves.

The eggs (four or five in number) measure: the largest, .52 × .70; smallest .46 × .62. The average is within a fraction of .50 × 68; they are white, sparingly sprinkled and blotched with light reddish brown, more on the greater end.

I have found but two nests, one, which had young, July 17; the other I discovered while the birds were building. When secured, June 10, it contained five eggs, one of which was a Cowbird's.

Mr. B. F. Goss of Pewaukee has, in his magnificent collection, thirteen nests, containing between fifty and sixty eggs—all taken by one collector

in the town of Summerfield, Monroe County, Michigan. I doubt if all the nests together of this Warbler previously found equals this number. —P. R. Hoy, M. D., *Racine, Wisc.*

Nest and Eggs of the Blackburnian Warbler. — On the 23d of May, 1879, my lamented friend, the late A. Jenings Dayan, pointed out to me, high in a lofty pine, the yet unfinished nest of the Blackburnian Warbler (*Dendræca blackburniæ*). The exact locality was a grove of large white pines (*Pinus strobus*) on a dry hill just east of Black River, at Lyon's Falls, Lewis County, New York. Some days previously Mr. Dayan had observed the female bird carrying in her bill a downy substance which afterwards proved to be the tufted seeds of the cat-tail. By the aid of a field-glass, after many hours of patient watching, he finally discovered the nest. On the 2d of June he ascended the tree and secured the prize. It was saddled on a horizontal limb twenty-five and a half metres (about eighty-four feet) from the ground, and three metres (about ten feet) from the trunk. The limb measured 15 mm. in diameter where the nest was attached. The nest contained four fresh eggs of the Blackburnian Warbler and one of the Cowbird (*Molothrus ater*).

Authentic published descriptions of the nest and eggs of this Warbler are so few in number, and so meagre in exact details, that I make no apology for presenting the following: the eggs measure, respectively (all measurements being in millimetres), 12.80 × 17.60, 12.60 × 17.80, 12.60 × 18, and 12.80 × 17.60. The ground-color is pale bluish-green, spotted all over with umber-brown of varying intensity, the spots tending as usual to form a ring at the large end. One differs from the rest in being well sprinkled with blotches of rich dark-umber, which coalesce into a broad zone around the large end. The nest is large, substantial, and very compact. It consists almost entirely of a thick and densely woven mat of the soft down of the cat-tail (*Typha latifolia*), with seeds attached, and is lined with fine lichens, horse hair, and a piece of white thread. On the outside is an irregular covering of small twigs and rootlets, with here and there a stem of moss or a bit of lichen. The outside diameter of this rough envelope is 125 mm.; outside diameter of cup or nest proper, 74 mm.; outside height, 53 mm. on one side and 42 mm. on the other. The inside of the cup measures 50 mm. in diameter and 29 mm. in depth.— C. Hart Merriam, *Locust Grove, N. Y.*

Nesting of the Worm-eating Warbler (*Helmitherus vermivorus*) **in Virginia.**—Although of late years the nest of the Worm-eating Warbler has been met with sufficiently often to dispel the obscurity which previous to 1869 rested upon the breeding habits of this bird, its discovery, especially in localities where it is not known to have been already found, is still a matter of considerable interest. While walking along an unfrequented road through the woods near Cobham, Albemarle County, Virginia, on May 19, 1884, my attention was attracted by the notes of a bird evidently in anxiety, and on looking for their source I found that they proceeded from one of these Warblers, which are not very rare in that vicinity in

the spring. I remained quite still, and the bird, which came very close to me, finally betrayed the position of its nest by flying towards it. This was situated about fifteen feet from the road; placed as usual on the ground, which was covered with dead leaves. It was embedded in a slight depression, and was partially concealed by a diminutive plant which grew alongside. It was neatly but not elaborately constructed of dry leaves and catkins, and was lined inside with the small, flexible, reddish brown stalks of a small plant, its dimensions being approximately as follows: external width, 3½ inches; internal width, 2¼ inches; external depth, 2¼ inches; internal depth 1⅝ inches. It contained four freshly laid eggs, the appearance of which corresponded to the descriptions of other observers, their color being white, dotted with spots of various shades of light reddish-brown, running together at the larger end, and intermingled with a few spots of lilac. They measured respectively .66 × .54, .68 × .54, .67 × .54, and .67 × .54 inches. As far as I have ascertained, the nest of this species has not before been definitely reported from any point south of the neighbourhood of Washington.—WILLIAM C. RIVES, JR., M. D. *Newport, R. I.*

Oporonis agilis and Dendrœca palmarum palmarum at Shelburne, near Gorham, New Hampshire.—On September 14, 1884, while collecting near the 'Dryad Camp' on the side of Mt. Baldcap (altitude approximately 800 feet), I secured a female Connecticut Warbler. When seen it was hopping about in a tangle of hobble bushes and low alders, which covered a small piece of swampy ground in high open woods. No others were seen although I looked carefully for them, and went to the same place several times hoping to find more. This adds the Connecticut Warbler to the birds of New Hampshire.

I shot a typical specimen of the western variety of the Redpoll Warbler (*Dendrœca palmarum palmarum*), on September 16, 1884. It was in a large mixed flock of Warblers, Chickadees, etc., which were feeding in a row of low birches by the roadside. The eastern form (var. *hypochrysea*) was not seen, although I collected steadily until September 24. This is, I believe, the first specimen of *D. palmarum* which has been taken in New Hampshire; the other five New England specimens being all from Massachusetts.—ARTHUR P. CHADBOURNE, *Cambridge, Mass.*

Swainson's Warbler off Southern Florida.—One of the most interesting facts brought to light by the Committee on Bird Migration is the discovery of Swainson's Warbler (*Helonœa swainsoni*) off Southern Florida, and the establishment of a fixed point in the line of its autumnal migration. On the night of the 14th of September, 1884, ten of these rare Warblers struck the lighthouse at Sombrero Key, one of the Florida Reefs. On the 15th about the same number struck, and on the 21st several more.

For the possession of this valuable information the Committee is indebted to the kindness of Mr. M. E. Spencer, keeper of the light, who forwarded specimens for identification—C. HART MERRIAM, *Locust Grove, N. Y.*

Swainson's Warbler — An Omission. — In my article on Swainson's Warbler in this number of 'The Auk,' I neglected to refer to an announcement by Dr. G. E. Manigault (Science Record, II, Feb., 1884, p. 34) of the capture of two specimens near Charleston by Mr. Wayne in August, 1883. It is, perhaps, enough to say in this connection that I have been since assured by Mr. Wayne that these birds were erroneously identified, and that they were certainly not Swainson's Warblers.—WILLIAM BREWSTER, *Cambridge, Mass.*

The Red Crossbill Breeding in Eastern Massachusetts.—Late in May, 1884, I received information that a flock of *Loxia curvirostra americana* had been seen on the outskirts of the town. Now this was a bird I had been looking for in vain for a number of years, my last record being about ten years ago, and that flock made but a short stay. So on the 31st I visited the locality named, which was 'just the place' for them, being a ledgy tract of pitch-pine, bordering on an alder and maple swamp. I found the flock there, about ten birds, and secured a pair, male and female, in fine adult plumage. On examination I concluded they had not yet bred, and were not likely to for some time. Thinking it probable some would nest there, I made several trips to the grove in June and July, but without result. I requested the man who owned the premises and lived near by, and who was quite interested in my search, to be on the watch for any young birds, and about the middle of July, was gratified with the information that he had twice seen at close quarters a pair of old birds feeding their young; and he has reported their presence quite frequently since, the last time being as lately as November 15.

I regret that I cannot fix the date of hatching (interesting from being so late in the season), and also that I cannot give this at 'first hand'; but my 'assistant observer' is reliable, and has often given me items of ornithological value.—F. C. BROWNE, *Framingham, Mass.*

The Ipswich Sparrow (*Passerculus princeps*) **in Delaware.**—Two specimens obtained Nov. 22, 1884, constitute, I believe, the first record of this species for the State, and the only record south of Seven Mile Beach, N. J. I secured them among the sandhills of Rehoboth Beach, about seven miles south of Cape Henlopen, and might have found others had not my available time been limited to one hour's search.—J. DWIGHT, JR., *New York.*

Peucæa æstivalis and its Subspecies illinoensis.—While at Washington last April I happened to mention to Mr. Ridgway that I had taken three specimens of what seemed to be his *Peucæa æstivalis illinoensis* at Charleston, South Carolina, in May, 1883. This led to an examination of Audubon's type of *Fringilla bachmani* (preserved in the collection of the National Museum) which very unexpectedly turned out to be also referable to the red inland form instead of, as has been previously assumed, to the dark, black-streaked one of Georgia and Florida. Hence

illinoensis Ridgway, 1879, must become a synonym of *bachmani* Audubon, 1834. It may be added that there is no doubt whatever that Lichtenstein's *Fringilla æstivalis* was based on specimens of the dark race. The two will accordingly stand as follows:

Peucæa æstivalis (*Licht.*) *Cab.—Habitat*, Florida and Southern Georgia.

Peucæa æstivalis bachmani (*Aud.*) *Brewst.—Habitat*, South Carolina, Alabama, Texas, Kentucky, Tennessee, and Southern Illinois and Indiana.

The respective distribution of these two forms remains to be definitely ascertained. Charleston, South Carolina, seems to be the only point on the Atlantic Coast where var. *bachmani*—as we must now call the red bird—has been found. It breeds there in abundance, as I learned during the past season (1884), when I collected a series of about fifty specimens in April and May. Some of them are intermediates, and a few approach *æstivalis* rather closely, but the majority are essentially typical *bachmani*. —WILLIAM BREWSTER, *Cambridge, Mass.*

The Black-throated Bunting in Maine.—On Sept. 29, 1884, I shot a Black-throated Bunting (*Spiza americana*) at Job's Island, one of the smaller islands in Penobscot Bay, Maine. The bird was found in a grass-field near a farm-house, and proved to be a young male of the year in good plumage. This is, I believe, the first instance of its capture north of Massachusetts.

The fact that the specimen was a young of the year, and that it was taken during the autumn migration, would lead one to think it had been reared in the region where it was found, or even farther north.—CHARLES W. TOWNSEND, *Cambridge, Mass.*

Foster Parents of the Cowbird.—During the season of 1884 I found young Cowbirds (*Molothrus ater*) in the nests of the Kingbird, House Wren, and Chipping Sparrow.—WILLIAM L. KELLS, *Listowel, Ontario.*

Nest and Eggs of the Rusty Grackle (*Scolecophagus ferrugineus*).—I have found but one nest of this species, but its location differs so from that given in the books that I am induced to record a description of it. During the spring of 1884 a pair of Rusty Grackles were noticed for several weeks about the garden of a neighbor in the suburbs of St. John, and apparently making their head-quarters in a large spruce which grew within 30 feet of the house, on the edge of a lawn that formed the daily playground of a bevy of children.

I had spent many an hour looking for the nest of this species "among the foliage of low alders overhanging the water," "in low trees and bushes in moist places," and "in swampy tangle," and I was puzzled to determine why this pair were spending the breeding season far away from all such surroundings. There was no doubt about the identification of the birds; I had grown familiar with their appearance from handling numerous specimens, and I saw these daily, frequently within a few feet of me.

They did not appear in the least disturbed by my presence, but if a Crow invaded their territory it was at once made the object of a vigorous assault. The Grackles were, however, frequently chased by both Robins and Rey-eyed Vireos.

At last something aroused my suspicion that a nest was in that spruce, and on June 24 I climbed up to investigate the matter. When my head was about 28 feet from the ground and among the dense foliage of the upper branches I came in sight of a bulky nest—extremely large for the size of the bird—set close to the stem and loosely laid upon a limb, portions of it spreading over several smaller branches and twigs. But it was merely resting upon them, they being not imbedded in the mud which formed part of the structure. In the nest were two young birds and two eggs unhatched; the latter were secured and the youngsters left for future study.

There was considerable difference in the size of the eggs and in their coloration. The smaller of the two measured 1.09 × .76, and was very similar in color and markings to those described in 'New England Bird Life.' The largest egg was 'pipped' and was destroyed before measured. The markings on it were less distinct than on the other, giving it a somewhat clouded appearance.

On examining the nest it proved to be very roughly constructed, without any approach to artistic work. It was composed chiefly of dried vines of honey-suckle loosely entwined at the sides and by an admixture of mud welded into a solid mass at the bottom. There was no attempt at a lining of any sort.

I noticed that while the young were in the nest both parents were attentive in feeding them, though the male was more frequently found guarding the nest, of which he was most watchful.—JAMES W. BANKS, *St. John, N. B.*

A White Crow (*Corvus frugivorus*).—I have to thank M. Dionne for generously granting me permission to announce the addition of an albino Crow to the Museum of Laval University of which he is in charge. The specimen was taken near the city of Quebec.—MONTAGUE CHAMBERLAIN, *St. John, N. B.*

A Remarkable Migration of Canada Jays.— On the 5th of September, 1884, Mr. Napoleon A. Comeau wrote me from his home at Godbout, on the north shore of the entrance to the Gulf of St. Lawrence: "We have lately had a most extraordinary migration of the Canada Jay (*Perisoreus*). One afternoon I counted over a hundred in the open space near the old Hudson's Bay Company's house here; and almost every day since the first of this month it has been the same. I believe this unprecedented flight must be owing to scarcity of berries in the interior, and, since they happen to be plentiful along the coast this fall, the birds follow the shore to feed on them."— C. HART MERRIAM, *Locust Grove, New York.*

The Kingbird in a New Rôle.—The following note is from the pen of my friend, the Rev. Frank W. Ritchie, who has courteously permitted me to publish it.

"On the afternoon of June 15, 1884, I was walking near the bank of the Massawipi River when my attention was drawn to a pair of Crow Blackbirds by their cries of evident distress, and, upon looking to see the cause of the outcry, observed, in a tree near by, a Crow with an almost fully fledged Blackbird dangling from its beak. In a few moments afterwards the Crow started across the river, the parents of its victim in hot pursuit, and when about midway the stream was charged upon by a Kingbird with such vigor that the young Blackbird was released, and half fell, half fluttered in a slanting direction toward the shore, the Kingbird following, and by flying under and against the youngster was evidently endeavoring to assist it in reaching the shore. Some bushes intervened between me and the birds, as they approached the water, and though I rushed down quickly, to observe the end of this interesting scene, by the time I reached the edge of the bank the birds had disappeared. As I could see nothing of the young bird's body floating on the water, I concluded that the Kingbird had succeeded in its generous endeavor."—MONTAGUE CHAMBERLAIN, *St. John, N. B.*

Late Occurrence of the Phœbe (*Sayornis fuscus*) **at Brewer, Maine.**—On Nov. 23 (1884), when the snow here was six inches deep, and the Penobscot River frozen over above the dam, a Phœbe came into my garden and remained a long time. As it was Sunday I did not shoot him, but there is no doubt as to his identity, for my daughter and I stood within a few feet of him and watched him catch insects over a smoking manure heap.—MANLY HARDY, *Brewer, Maine.*

Hawk Owls in New England.—Although the months of October and November, 1884, do not seem to have been characterized by any special meteorological phenomena, they will be long remembered by ornithologists and collectors throughout Northern New England from the fact that they brought to this region a flight of Hawk Owls altogether unparalleled in any previous year of which we have definite records. This inroad seems to have begun late in October and to have lasted nearly through November. It apparently extended over most of Northern Maine and New Hampshire, but I have no evidence that it reached Massachusetts. Some idea of the abundance of the birds may be had from the fact (for which I am indebted to Mr. Manly Hardy) that a single taxidermist in Bangor, Maine (Mr. Bowler), received no less than twenty-eight freshly-killed specimens in the course of a few weeks. Most of our Boston taxidermists also had from three to six each (all from Northern Maine or New Hampshire), and at Lake Umbagog, Oxford County, Maine, I secured four, shot respectively Oct. 25, Oct. 31, Nov. 15, Nov. 16.

These figures doubtless represent but a small proportion of the total number killed, for in the region over which the birds spread few persons

are aware that an Owl has any commercial value, although every one shoots the despised bird at sight. Thus for every one preserved a dozen were probably thrown away. As instancing this, I quote the following from a short note in 'Forest and Stream',* signed Ned Norton, and dated at Colebrooke, N. H., Dec. 1: — "Hawk Owls came three weeks ago in greater numbers than ever seen before. Farmers' sons have been killing them all over the country."

The account of this species in 'New England Bird Life' (Part II, p. 96) would lead one to infer that while "a rare and irregular winter visitor to Massachusetts," it is of regular and rather common occurrence throughout Northern New England. This is certainly a mistake, as every collector who has any practical knowledge of our fauna knows. Indeed the bird is ordinarily one of the very rarest of our Owls — so rare, in fact, that during an experience of some twenty years previous to 1884 I had never seen either a living or freshly-killed specimen.

In respect to the remarkable migration just described, it may be well to add that all the specimens which I have examined belong to the American form, *Surnia funerea* (L.) Rich. & Sw. — WILLIAM BREWSTER, *Cambridge, Mass.*

The Turkey Buzzard in Central New York.—I have lately examined all that remains of a *Cathartes aura* which was killed in Oneida County, N.Y., in May, 1879. When first seen he was in company with three others in a small grove in Westmoreland Township, and was shot by Mr. Lavello J. Groves, of that town, who had him mounted and preserved. This is certainly the first record for the County and, I think, for this part of the State.—EGBERT BAGG, JR., *Utica, N. Y.*

Recent Occurrence of the Black Vulture in Ohio.— A Black Vulture (*Catharista atrata*), in company with some Crows, flew into the Zoölogical Garden on the afternoon of Dec. 4, 1884. Spying one of the same species in one of the outer aviaries, it deserted its companions and alighted on the wire netting covering the aviary. From thence it flew on to the lower limb of a large tree just opposite, and becoming frightened at the attempts of the keepers to capture it, circled to a great height and slowly sailed off in an easterly direction.— FRANK J. THOMPSON, *Zoölogical Garden, Cincinnati, O.*

A New Bird for Illinois.— In a letter from Mr. Ridgway, dated Oct. 25, 1884, he says: "Among the lot of birds you sent us last week was a specimen of *Buteo borealis krideri* (orig. No. 575), a very typical specimen, from Halfday, Illinois, July 25, 1876. This specimen is particularly acceptable since the race was previously unrepresented in our collection. It also adds one bird to the fauna of Illinois!" Referring to my Record I find that No. 575 was one of two large Hawks (the other a *Buteo borealis*) brought into camp by one of our party while on a collecting trip along

* Vol. XXIII, No. 19, Dec. 4, 1884, p. 368.

the Des Plaines River, thirty miles northwest of Chicago. It is an adult female, and measured in the flesh 21.75 inches in length and 40 inches in extent. It was captured while perched on a stake in a field not far from the 'big woods.' Another large, light colored Hawk was seen which might have been the male, but it was too wary to allow a near approach. —H. K. COALE, *Chicago, Ill.*

The Great White Egret and the Yellow Rail in Ottawa, Canada.—In the ornithological collection of the Geological and Natural History Survey of Canada are two mounted specimens which, from the localities of their capture, deserve special notice. The first of these is a fine spring male of *Herodias egretta*, which was shot in the spring of 1883 at Rockliffe, Ont., by Mr. Sidney H. McIntyre, and presented by him to the Survey. In answer to a letter of inquiry Mr. W. H. McIntyre writes: "Two of these birds are all that were ever seen here. They seemed to be a pair, and after this one was shot the other stayed around for a day or two and then left, and we have seen no more like them. I cannot give date of the shooting; it was shot, however, by my son Sidney H. McIntyre within about one half mile of our house at Rockliffe." Rockliffe is on the Ottawa River, about lat. 77° 50′ north, long. 46° 08′ west, making, as far as I am aware, the most northerly record of the Egret.

The other specimen is a spring bird of *Porzana noveboracensis* shot on Loronto marshes in June, 1874, by Mr. Herring, the taxidermist of the Survey. Mr. Herring tells me that although this is the only specimen he has ever actually shot, he is quite certain that he has on several other occasions 'put up' specimens of this Rail in the same locality.—W. L. SCOTT, *Ottawa, Canada.*

The Œdicnemus dominicensis in Confinement.— In September, 1883, the Society received two Thick-knees, which were evidently young birds, with their plumage in bad condition. Being informed that they came from South America, they were provisionally called *bistriatus*. It was the latter part of last September (1884) before they were properly identified as *Œdicnemus dominicensis* Cory (Auk, 1884, p. 4). They have become exceedingly tame; are in full plumage, and during the summer nights make the whole garden ring with their peculiar shrill notes.—FRANK J. THOMPSON, *Zoölogical Garden, Cincinnati, O.*

The Western Semipalmated Sandpiper on the Coast of Virginia.—As there are but few recorded captures up to this time of *Ereunetes pusillus occidentalis* in the Eastern Province, it is perhaps worth while to mention its occurrence at Virginia Beach, where Mr. Henry Seebohm and the writer met with it on Sept. 6 and 7, 1884. It was in company with *E. pusillus* and several other species of the smaller Waders, all of which appeared to be abundant. Several of the birds (*E. occidentalis*) were shot but only one was preserved, which was seen and identified by Mr. Ridgway. *E. pusillus* was also taken, so there was no chance of confounding the two forms. Virginia Beach, Va., is on the Atlantic coast, twenty miles east of Norfolk.—C. W. BECKHAM, *Washington, D.C.*

The Canada Goose.— Mr. James P. Howley, in his article entitled 'The Canada Goose (*Bernicla canadensis*),' in the October 'Auk', p. 310, lines 33 and 34, states that they "require six months to mature." This is contrary to my observations regarding the breeding of this bird. My notes, however, are entirely confined to their breeding while in a state of captivity. During the last week in May, 1879, I saw some goslings, just hatched, belonging to Capt. Lane, of Shinnecock Bay, Long Island, N. Y. August 16, I saw them again and was unable to distinguish them from the rest of the flock by their size or plumage. The present season Capt. Lane raised nineteen Geese. I saw the flock daily from June 26 to July 25, and during the latter part of the time the young birds were hardly distinguishable from the old ones, except by the solicitude the parents displayed for the safety of their progeny. Capt. Lane has had remarkable success in breeding Canada Geese in confinement, and has kindly furnished me with the following information regarding their habits during the incubating season: "They make their nests of dried grass, raising them about twelve inches from the ground. They feather them when they begin to lay, which is about May 1. None lay until three years old; the first season four eggs are laid, five the second season, and when older six and seven. A goose never has more than one mate. The gander never sits on the nest, but while the goose is sitting never leaves her. The time of incubation is four weeks. The young when hatched are strong enough to take care of themselves, that is, they eat grass and walk and swim as soon as they get dry. They will eat meal on the second day. They are in the down four weeks, and are fully grown in six weeks. When swimming, the gander goes ahead, the young next, and the goose follows, invariably."— WM. DUTCHER, *New York City.*

The Eider Ducks of the New England Coast.—In view of the general confusion and ignorance respecting New England Water Birds, it may be not amiss to call attention to the fact that two forms of the Eider Duck are found regularly in winter on our coast. Of these Dresser's Eider (*Somateria dresseri*) is the commoner, as well as probably the only one which breeds within our limits. The other, *Somateria mollissima* proper, is much less numerous, but still far from rare or accidental. It doubtless reaches Massachusetts, but I do not remember to have seen specimens from any point south of the mouth of the Penobscot River, Maine. The best authorities now regard *dresseri* as specifically distinct from *mollissima.*—WILLIAM BREWSTER, *Cambridge, Mass.*

The White Pelican on Lake Ontario.—In the last number of 'The Auk' (p. 395) Mr. McIlwraith records a visit of five White Pelicans to the west end of Lake Ontario, March 13, 1884. The birds had evidently spent some time in the neighborhood, for I learn from Capt. Thos. Campbell, Keeper of Burlington Bay Lighthouse, that four Pelicans were seen there February 5-7, 1884.—C. HART MERRIAM, *Locust Grove, N. Y.*

The Common Cormorant off Boston Harbor.—On the 22d of September, 1884, while shooting on the 'Graves,' a dry reef a few miles off the entrance to Boston Harbor, I secured a Common Cormorant (*Phalacrocorax carbo*). It was the only one seen, the rest of the Cormorants being *P. dilophus*, and at once attracted my companion's notice by its large size and whitish underparts. Inquiries made of local collectors and fishermen failed to elicit any proof of its occurrence at this point, although 'way north' they 'saw them often.'—WM. A. JEFFRIES, *Boston, Mass.*

The Common Cormorant in Massachusetts.—Although several recent authors have characterized *Phalacrocorax carbo* as a common fall or winter visitor to this State, the specimen recorded by Mr. Jeffries in the preceding paragraph is the only authentic Massachusetts one of which I have any present knowledge. Very probably there are a few others scattered about in collections, but it is nearly certain that the bird, so far from being common, is extremely rare here. Along the coast of Maine, however, it winters regularly and in large numbers, especially at some small islands near the mouth of the Penobscot River, whence I have received several specimens through the kindness of Mr. Manly Hardy. This gentleman writes me that *P. dilophus* is not found there in winter, nor have I any record of its wintering in Massachusetts, although it is a common spring and fall migrant here.—WILLIAM BREWSTER, *Cambridge, Mass.*

Rare Summer Residents in Kansas.—On the 26th of June, 1884, at Fort Wallace, on and about a pond made by damming the Smoky Hill River, I saw four pairs of American Coots (*Fulica americana*), six pairs of Shovellers (*Spatula clypeata*), one pair of Blue-winged Teal (*Querquedula cyanoptera*), a female Gadwall (*Chaulelasmus streperus*), and a small flock of Yellow-headed Blackbirds (*Xanthocephalus icterocephalus*). From the actions of the birds I think their breeding grounds were on the small, bog-like islands, covered by a thick growth of grass and weeds, and also flags in places. The next day near Ellis, on Big Creek, I saw a female Hooded Merganser (*Lophodytes cucullatus.*)

On July 5 following, near Lawrence, in an old channel of the Kansas River, I saw several pairs of American Coots, one pair of Mallards (*Anas boscas*), and, skimming over and about the water, a Black Tern (*Hydrochelidon lariformis surinamensis*), and, at the edge of the timber bordering the slough, an Acadian Flycatcher (*Empidonax acadicus*), a Black-and-white Creeper (*Mniotilta varia*), feeding its young, and a pair of Blue Grosbeaks (*Guiraca cærulea*), with three young birds following them in their flights, clamorous for food; and on the 11th of the same month, at Topeka, a male Black-headed Grosbeak (*Zamelodia melanocephala*).

Both of the Grosbeaks mentioned are quite common in the western and middle parts of the State, the Blue breeding as far east as Manhattan. Their occurrence east of that locality is rare. Prior to this I had not observed the Black-headed east of Ellis, but Professor D. E. Lantz writes

me that on the 14th of August last he saw at Concordia quite a number, mostly young birds, and that Dr. C. P. Blachly has in his collection a female shot some three years ago at Manhattan.—N. S. Goss, *Topeka, Kan.*

Third Addendum to List of Birds Ascertained to Occur within Ten Miles from Point des Monts, Province of Quebec, Canada; Based Chiefly upon the Notes of Napoleon A. Comeau.—(For the original list and first and second addenda see Bull. Nutt. Ornith. Club, Vol. VII, No. 4, Oct., 1882, pp. 233–242; Vol. VIII, No. 4, Oct., 1883, p. 244; and The Auk, Vol. I, No. 3, July, 1884, p. 295.)

171. **Anorthura troglodytes hyemalis.**—A pair of Winter Wrens spent the past summer (1884) at Godbout. They were first seen July 7. This species was not observed in the Gulf by either Mr. Brewster or myself, though it is common in Newfoundland.

172. **Somateria dresseri.**—Mr. William Brewster has recently called my attention to the fact that among the skins of Eider Ducks sent me by Mr. Comeau are examples of both *S. mollissima* and *S. dresseri*.

173. **Tachypetes aquila.**—A Frigate Pelican was seen and shot at by Mr. Comeau at Godbout August 13, 1884. It had previously been seen (about the end of July) by the keeper of the lightship at Manicougan, about forty miles higher up the river.

A second specimen of the Wheatear (*Saxicola œnanthe*) was taken at Godbout, September 19, 1884, and was exhibited by Mr. Comeau at the late meeting of the American Ornithologists' Union.—C. Hart Merriam, *Locust Grove, New York.*

Albinism.—My attention was drawn to a note in the 'Oölogist' for April last, in which the writer gives his experience in albinism and asks for an explanation of these freaks of nature. In order to air my experience, and at the same time to give a probable cause, which I would like, for the sake of possible verification, other observers to look for in the future, is the object of the present note.

True albinism is of course congenital, and is a condition in which the normal pigmentary matter is deficient in the system of the individual affected; in such cases the eyes are pink, and the skin with its appendages are white or nearly so. In the case of partial albinos, however, it is difficult; their condition can probably be explained by some circumstances occurring after birth which will account for the change in the color of the skin, such for instance as the case given by the writer in the 'Oölogist,' in which the skin had been injured on the back of a Swift, and next year the patch of white feathers indicated the situation of the injury. The same thing is familiar in the case of the horse whose back or shoulder is galled by the harness; white patches appear, owing to lowered vitality of the injured part. These cases are familiar, but I wish to give possibly another cause acting in the same way, only more general. It is this. When a boy I shot among others a black squirrel peculiarly marked, it having a per-

fectly white tail, with some white about the head; on making a post mortem I discovered through a rent in the intestines a tape-worm about 20 feet in length. Did not wonder then that his head was gray. A few years after a partially white Red-winged Blackbird (*Agelæus phœniceus*) was taken, which also contained two or three tænia; next a partial albino Mallard; then a Robin (*Turdus migratorius*) with a white head and mottled back and breast. All were mounted, and are now in my collection. Each of these had two or more tape-worms in their intestines. I am aware that birds, especially some species, are particularly obnoxious to tape-worms, and the above may have been merely coincidences; still it has been observed sufficiently often to make the fact suspicious as a cause of albinism.—G. A. M'CALLUM, *Dunnville, Ont.*

CORRESPONDENCE.

[*Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.*]

TO THE EDITORS OF THE AUK:—

Sirs: I see by the last number of 'The Auk' that the Committee on Nomenclature is undecided whether to adopt the name 'Junco' or 'Snowbird' as the vernacular name of *Junco hiemalis*. The bird in question is here, and in many other parts of its range, not a 'Snowbird' at all, as it almost invariably leaves for the South before there is any snow, and does not return till the ground is completely clear. I think this should be sufficient to decide the question in favor of 'Junco,' as in my opinion a bird should always bear a name which is applicable to it in every part of its range.

The same argument applies with equal or still greater force to the name 'Winter Wren.' *Anorthura troglodytes hyemalis* spends the summer in the hills near here, but is *never* found here during the cold weather; and people here have frequently remarked on the absurdity of our having to call an essentially summer bird the 'Winter Wren.' It may be urged that we have no choice in the matter, as there is no other name for the bird; but why cannot some descriptive name, such as 'Short-tailed Wren,' be invented. Many will doubtless say that the old name is too well established to admit of its removal; but the Committee has, I understand, in some instances made changes even more radical than this, and on no stronger ground; and it does seem a pity, when a thorough and final revision of the nomenclature is in progress, to allow a misnomer like 'Winter Wren' to stand. For surely a name must be considered a misnomer which is inapplicable in a bird's summer home — the place where by far the most important part of its life's drama is enacted.

Ottawa, November 19, 1884. W. L. SCOTT

NOTES AND NEWS.

Dr. R. W. Shufeldt, Capt. Med. Corps, U. S. Army, is now on duty in the field, being stationed at Fort Wingate, N. M. He is at present busily engaged on a memoir on the anatomy of the Alcidæ, for which many of the drawings are already completed. He would, however, be glad to receive additional material in illustration of the group, either skeletons or parts of skeletons, or, still better, specimens in spirits. He would like to borrow such material, giving due credit therefor in his forthcoming memoir. Sterna, skeletons, and skulls may be readily sent by mail, and alcoholics in like manner, if first thoroughly drained of alcohol and then well wrapped.

Dr. Wilhelm Blasius has published in the 'Journal für Ornithologie' for January, 1884, a memoir of 125 pages on the Great Auk (*Alca impennis* Linn.). He gives the history of all known extant specimens, numbering 76 skins and mounted specimens, 9 skeletons, and 68 eggs. The number of skeletons, however, should be reduced to 8, as the Museum of Comparative Zoölogy is credited with two, whereas it has but one. Dr. Blasius gives a résumé of the literature of the subject, and the history in detail of each specimen known to exist.

'The Naturalist in Florida' is the name of an illustrated bi-monthly sheet, edited by C. J. Maynard, which it is intended "shall occupy a peculiar field of its own, ... that of bringing before the people facts either new or interesting of the Natural History of Florida and its vicinity." Three numbers have already appeared, and contain several papers, by the editor, of interest on birds.

In a sale 'Catalogue of Bahama Birds' Skins, Nests, and Eggs,' Mr. C. J. Maynard has described a new species of Woodpecker, under the name *Picus insularis*. Its nearest ally is *Picus villosus* of North America, from which, however, it appears to be specifically distinct. The description is published as an extract from "Mr. Maynard's forthcoming work, entitled 'A Naturalist in the Bahamas.'" The publication of new species in ephemeral sale catalogues has been repeatedly characterized as reprehensible, and the present case seems fully open to such criticism, there being no lack of proper media for such announcements. Mr. Maynard secured, on his last winter's trip to the Bahamas, fine series of several very rare species, and many interesting notes on Bahama birds may doubtless be safely anticipated in the above-named work which he proposes soon to publish.

'The Young Oölogist,' a monthly of sixteen pages, edited and published by Mr. Frank H. Lattin, of Gaines, Orleans Co., N. Y., has nearly completed its first volume. As its name indicates, it is devoted to oölogy, and is published in the interest of young ornithologists, but each number contains more or less matter of permanent value.

At a meeting of the Nuttall Ornithological Club, held Dec. 2, 1884, the annual election of officers was had, resulting in the re-election of the present incumbents, except Vice-President J. A. Jeffries, absent in Europe. The officers for 1885 are as follows: President, William Brewster; Vice-President, W. A. Jeffries; Recording Secretary, Henry A. Purdie; Corresponding Secretary, J. A. Allen; Treasurer, Charles F. Batchelder. The meetings are held the first and third Tuesdays of each month, from October to June, inclusive. At the December meetings papers were read by Mr. Brewster, on 'Swainson's Warbler,' on 'The Heath Hen of Massachusetts,' and on an interesting collection of birds made by Mr. F. Stephens in Arizona; and by Mr. Allen on 'Sexual Selection and the Nesting of Birds'; and various briefer communications were made by other members.

At the December meeting of the Ridgway Ornithological Club, donations of skins were announced from Mr. H. L. Fulton, and the following papers were read: 'The Genus *Helminthophaga*,' by Dr. Morris Gibbs; 'The White-rumped Shrike' (impaling insects on barbed-wire fence), by Geo. H. Ragsdale; 'The Economic Structure of Birds' Crests,' by H. K. Coale.

Ornithologists will be interested to learn that the celebrated collection of Birds' eggs and nests, belonging to the well-known ornithologist, Dr. A. C. E. Baldamus, of Coburg, Germany, is now offered for sale. This collection is without doubt one of the richest of its kind in the world, numbering nearly 2,000 species, and some 10,000 specimens. It is especially rich in the nests and eggs of European birds, and has been gathered with the greatest care as regards identification and authentication. A printed catalogue of the collection has been prepared, giving a list of the species represented, and the number and character of the specimens of each included. It is greatly to be hoped that the collection may be secured for some museum in this country.

In the October number of 'The Auk' its readers were invited, in behalf of the A. O. U. Committee on the Nomenclature and Classification of North American Birds, to notify the Editor of this Journal of their preferences in respect to the names 'Junco' and 'Snowbird,' and 'Vireo' and 'Greenlet,' for the English designations of the species, respectively, of the genera *Junco* and *Vireo*. Twenty-four persons have responded, as follows: For Junco, 18; for Snowbird, 6; for Vireo, 22; for Greenlet, 2. Several writers have given at length their reasons for preferring Junco to Snowbird, besides the formal letter given in this issue in the department of 'Correspondence.'

SUPPLEMENT.

COMMITTEE ON THE MIGRATION AND GEOGRAPHICAL DISTRIBUTION OF NORTH AMERICAN BIRDS.

Circular for 1885.

The Committee on Bird Migration, during the first year of its existence (1884), distributed six thousand circulars, and in reply has received returns from more than a thousand observers. The area over which these observers are scattered is co-extensive with the boundaries of the inhabited portions of the North American Continent, and includes parts of the West Indies, Central, and South America. Stations now exist in every state in the Union, and in every Territory excepting Nevada. Exclusive of Spanish America, the extreme points from which reports have actually been received will appear from the following statement: In the East, the southernmost station is Sombrero Key, off Southern Florida (latitude 24° 37′); and the northernmost, Belle Isle, off Labrador (latitude 51° 53′). In the West, reports have come to hand from Arizona and Southern California, and from Point Barrow, the most northerly point of Arctic Alaska (lat. 71° 18′). The easternmost station from which data have been received is St. John's, Newfoundland (west longitude 52° 45′), projecting well into the Atlantic; while on the Pacific the Committee has observers at various points in California, Oregon, Washington, and British Columbia.

Hence it appears that the migration stations of the American Ornithologists' Union, exclusive of those in Spanish America, are sprinkled over 46° 41′ of latitude (approximately three thousand two hundred miles in a north and south direction), and 72° 15′ of longitude (approximately three thousand five hundred miles in an east and west direction). The distance in a straight line between the two most remote points (Sombrero Key and Point Barrow) is about four thousand three hundred miles.

For convenience in collecting the enormous mass of material accumulated by the Committee, the territory under investigation has been divided into sixteen districts, each of which has been placed under the immediate direction of a competent Superintendent. The Districts, with their respective Superintendents, are: —

Alaska, Supt., John Murdoch, Smithsonian Inst., Washington, D. C.

North-west Territories, Supt., Ernest E. T. Seton, Assinaboia, *viâ* Carberry, Manitoba.

Newfoundland, Supt., James P. Howley, St. John's, Newfoundland.

British Columbia, Supt., John Fannin, Burrard Inlet, British Columbia.

Manitoba, Supt., Prof. W. W. Cooke, Moorhead, Minnesota.

Quebec and the Maritime Provinces, Supt., Montague Chamberlain, St. John, New Brunswick.

Ontario, Supt., Thomas McIlwraith, Hamilton, Ontario.

New England, Supt., John H. Sage, Portland, Conn.

ATLANTIC DISTRICT (New York [excepting Long Island], Pennsylvania, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina), Supt., Dr. A. K. Fisher, Sing Sing, New York.

LONG ISLAND, New York, Supt., William Dutcher, 231 West 128th St., New York City.

MIDDLE-EASTERN DISTRICT (Southern Michigan, Indiana, Ohio, West Virginia, Kentucky and Tennessee east of the Tennessee River, Alabama, Georgia, Florida), Supt., Dr. J. M. Wheaton, Columbus, Ohio.

MISSISSIPPI VALLEY DISTRICT (Dakota, Minnesota, Wisconsin, Northern Peninsula of Michigan, Nebraska, Iowa, Illinois, Kansas, Missouri, Indian Territory, Arkansas, the small portions of Kentucky and Tennessee west of the Tennessee River, Texas, Louisiana, Mississippi), Supt., Prof. W. W. Cooke, Moorhead, Minnesota.

ROCKY MOUNTAIN DISTRICT (Idaho, Montana, Wyoming, Utah, Colorado, Arizona, New Mexico), Supt., Dr. Edgar A. Mearns, Camp Verde, Arizona.

PACIFIC DISTRICT (Washington, Oregon, California, Nevada), Supt., L. Belding, Stockton, California.

LIGHT-HOUSE DIVISION OF NORTH AMERICA, Supt., Dr. C. Hart Merriam, Locust Grove, New York.

LIGHT-HOUSE DIVISION OF SPANISH AMERICA, Supt., L. S. Foster, 35 Pine Street, New York City.

INSTRUCTIONS TO COLLABORATORS.

The Committee particularly desires from each observer a brief but careful description of the principal physical features, including latitude, longitude, and altitude, of the locality which is the seat of his observations.

The data collected may conveniently be arranged in three general classes: *a*. Ornithological Phenomena. *b*. Meteorological Phenomena. *c*. Contemporary and Correlative Phenomena.

(*a*) *Ornithological Phenomena.*

Each observer is requested to prepare, at his earliest convenience, a complete list of the birds known to occur in the vicinity of his Station, and to indicate (by the abbreviations enclosed in parentheses) to which of the following five categories each species pertains:—

1. *Permanent Residents*, or those that are found regularly throughout the year (R).

2. *Winter Visitants*, or those that occur only during the winter season, passing north in the spring (WV).

3. *Transient Visitants*, or those that occur only during the migrations, in spring and fall (TV).

4. *Summer Residents*, or those that are known to breed, but which depart southward before winter (SR).

5. *Accidental Visitants*, or stragglers from remote districts (AV).

It is desirable also to indicate the relative abundance of the different species, the terms to be employed for this purpose being: *Abundant*, *Common*, *Tolerably Common*, *Rare*.

If you are in a position to observe the lines of flight of birds, have you noticed whether or not such lines are influenced by the topography of the country, and if so, to what extent?

If a mountain intercepts the line of flight, what kinds of birds pass around it, and what kinds pass over it?

What localities in your neighborhood are sought as resting-places by the various kinds of migrating birds? Can you give any reason for this selection?

What kinds of birds generally move in flocks, and what kinds in pairs or singly?

Are you familiar with any kinds of birds in which the males and females, and old and young, fly in separate flocks? In many species the males arrive in advance of the females, hence it is important to note the sex of the first comers, and the date at which the opposite sex is first seen.

Have you observed from year to year any increase or decrease in the numbers of any kind of bird known to you? If so, do you attribute such change to altered conditions in the bird's breeding grounds? If not, can you assign a cause?

Have you observed the increase or decrease of one species to affect the numbers of another species? If so, can you explain the fact?

Has any kind disappeared altogether, and if so, can you assign a cause for this disappearance?

Among the birds which are now common about your station is there any kind that was formerly rare or absent? If so, can you explain the fact?

Among the birds which breed regularly in your vicinity have you ever observed an individual which by some personal peculiarity (such as the presence of white or dark feathers where they do not belong, or by some deformity) could readily be distinguished from others of its kind? If so, has this bird returned to the same place to nest year after year?

In recording arrivals and departures it is highly important to distinguish between the movements of irregular stragglers, of the advance guard or 'van,' and of the principal mass or 'bulk' of the species. For this purpose observers are requested to note:—

1. When the species is first seen.
2. When it is next seen.
3. When it becomes common.
4. When the bulk departs.
5. When the last individual is seen.

In addition to the above data, which *all* observers are requested to furnish, the Committee particularly desires exact records of every increase and decrease in the numbers of a given species over a given area; for it is only by the knowledge of the daily fluctuations of the same species in the same place that the progress and movements of a 'flight,' or 'bird-wave,' can be traced. Such data can be contributed by experienced observers only, and in their procurement much time must be spent in the field. During the progress of the migratory movement the observer should go over

the same ground day after day, and, if possible, both early in the morning and late in the afternoon. He should visit woodlands, thickets of dense undergrowth, and open fields; and, if possible, both swamp and upland should fall under his daily scrutiny.

The above may be regarded as *essential data*. There are many other noteworthy details that bear more or less directly upon the complicated problems involved in the study of migration. Among such may be mentioned the bodily condition of the bird (whether fat or lean), the moult, and the periods of song. The time of mating, when observed, should always be recorded.

The Committee desires positive information concerning the food of all birds.

(*b*) *Meteorological Phenomena.*

The Committee desires information upon:—

1. The direction and force of the wind.
2. The direction, character and duration of storms.
3. The general conditions of the atmosphere, including rainfall.
4. The succession of marked warm and cold waves, including a record of all sudden changes of temperature.

(*c*) *Contemporary and Correlative Phenomena.*

The Committee desires that the data under this head be as full and complete as possible, and requests exact information upon:—

1. The date at which the first toad is seen.
2. The date at which the first frog is heard.
3. The date at which the first tree-toad or 'peeper' is heard.
4. The dates at which certain mammals and reptiles enter upon and emerge from the state of hibernation.
5. The dates at which various insects are first seen.
6. The dates of the flowering of various plants.
7. The dates of the leafing and falling of the leaves of various trees and shrubs.
8. The dates of the breaking up and the disappearance of the ice in rivers and lakes in spring, and of the freezing over of the same in the fall.

It must not be supposed, because the Committee asks for a large amount of information upon a variety of subjects, that meager or isolated records are not desired. Quite the contrary is true. Comparatively few of the observers are ornithologists, or even bird collectors, the great majority being intelligent farmers, tradesmen, and light-keepers. Those who know only the commonest birds, such as the Robin, Bluebird, Bobolink, Martin, Hummingbird, and Chimney Swift, can furnish important data, and their services are eagerly sought.

C. Hart Merriam, M. D.,
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Locust Grove, Lewis County,
New York.